# 11. Flight Operations Scenario Group

The Flight Operations Scenario Group is not applicable to the LaRC Volume. Refer to "Release A System Acceptance Test Procedures for the ECS Project, Volume 3: Earth Observing System (EOS) Operations Center (EOC)" for FOS procedures.

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# 12.  End-to-End Scenario Group

The End-to-End Scenario Group verifies the ECS capabilities to support "all-up" multi-site operations and typical "day-in-the-mission-life" scientist activities. This group of scenarios and associated tests verifies that the ECS can support broad, multi-site interactive operations in support of mission planning, scheduling and science data access, and distribution. These scenarios verify the capabilities of ECS to enable the users and operators to perform multi-step processes, including multiple data set searches and transfers, correlative data set analysis, etc.

In addition, early selected AM-1 mission interfaces needed in Release B, some of which are still being implemented, are tested and/or simulated. The overall objective of the end-to-end scenario group is to demonstrate that the ECS, as a 'whole', operates properly and can provide the full range of required functional capabilities for the TRMM Release.

This scenario group concentrates on extending the functional verification performed in executing the scenarios described in Sections 8 through 11, but occasional replication of single entity functional testing is unavoidable. Where possible, actual interfaces and existing, real data are used. In many cases, however, simulated data streams and/or interfaces are used due to the immaturity of the ECS, the missions and/or the interfacing external facilities. The ECS EDF is used to simulate some tests, but testing at the actual DAAC sites predominates. Performance tests and performance analyses complement the multi-site and mission support tests to ensure that the ECS meets current and projected system performance requirements.

This scenario group verifies the ECS capabilities to support inter-site communications and operations among the three TRMM Release A DAAC sites, the EOC, the SMC and with the external EDOS, EBnet, FDF, NCC systems; scientist data handling, processing and distribution support for the TRMM mission; early AM-1 mission interface testing; system management and inter-site coordination; and system and end-to-end performance requirements.

## 12.1 Multi-Site Intercommunications and Interoperations Scenario

This scenario carries the ECS site operations staff through the process of handling complex data product orders that requires supporting data from multiple sites. This scenario confirms the capability of the system to allow users and operators to perform message broadcasting, multi-site system management and inter-site network communications. This scenario confirms inter-site interfaces, with each site accepting and interpreting data messages from other sites to ensure readiness to support interactive message traffic among the three DAACs and the SMC, and with the EDOS and the DAO, using EBnet or NOLAN. Message traffic to/from the EOC and the LaRC DAAC and the SMC is also verified. In addition, the capability of the SMC to support system wide schedule generation, coordination and adjudication is also confirmed.

### 12.1.1 Inter-Site Message Sequence

This sequence of tests verifies the capability of the users/operators at each DAAC as well as the SMC to receive and handle broadcast messages. Users/operators at each DAAC broadcast messages to the other DAACs and the SMC and receive message receipt acknowledgments. Message traffic to/from the EOC and the LaRC DAAC and the SMC is also verified.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CSS/MSS & ISS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e. other ECS sites and data sources) needed for this sequence (both real and simulated) are listed:

GSFC ECS DAAC

EDC ECS DAAC

SMC

EOC

**Operator Position(s)**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607/OP2) needed to support this sequence are listed:

DAAC Resource Manager

DAAC Computer Operator

DAAC Ingest/Distribution Technician

**Operational Scenario(s)**: There are no operations scenarios taken from the Operations Scenarios for the ECS Project: Release-A, used during this sequence of tests.

**Test Dependencies**: The following table identifies the test procedure(s) for this sequence of tests that should be run prior to or concurrently with this test procedure.

| Test Procedure No. | Site/Procedure No. | Comments |
|---|---|---|
| A120110.020$L | A120110.020$G A120110.020$E A120110.020$S | Concurrent. |

## 12.1.1.1 Inter-DAAC and DAAC-SMC Communications

| TEST Procedure No.:<br>A120110.020$L | Date Executed: | Test Conductor: |
|---|---|---|

| Title: | Inter-DAAC and DAAC-SMC Communications |
|---|---|

| Objective: | This procedure tests the capability of the LaRC  DAAC  to sequentially send messages to the other Release A DAACs and to the SMC. The LaRC  DAAC also sends messages to the EOC. The capability of the LaRC  DAAC to receive and process acknowledgments of  message receipt is also verified. In addition, the EOC and the SMC send messages to the LaRC DAAC and receive acknowledgments of message receipt in return. |
|---|---|

| Requirements | Acceptance Criteria |
|---|---|
| EOSD0730#A | This requirement is verified through test.<br><br>Each ECS element shall be capable of verifying the fidelity of the ECS element interface to:<br><br>a. Other ECS elements at any time during the lifetime of the ECS<br><br>b. Entities external to ECS at any time during the lifetime of the ECS<br><br>During the test, the tester accesses the email and FTP clients and sends an email message and planning, scheduling, and directive data files to the other Release A DAACs, the SMC, and the EOC. Acknowledgments of message receipt are then received and processed. The LaRC DAAC also receives email and planning, scheduling and directive data files from the SMC and EOC and responds with acknowledgments of message receipt.<br><br>Item b is not verified in this test. Item b is verified at the LaRC DAAC in test procedure A080180.050$L. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| PLANNING_001 | TBD | TBD | TBD | 1 |
| SCHEDULE_001 | TBD | TBD | TBD | 1 |
| DIRECTIVE_001 | TBD | TBD | TBD | 1 |
| EMAIL_001 | TBD | TBD | TBD | 1 |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | DAAC Resource Manager: Coordinate email transfer with GSFC DAAC, EDC DAAC, SMC, and EOC. | |
| 20 | DAAC Ingest/Distribution Technician: Access Communications Server and invoke email client. | |
| 30 | DAAC Ingest/Distribution Technician: Specify email address at GSFC DAAC to which message is to be sent. Specify subject and body of message to be sent. Send email message to GSFC DAAC. | |
| 40 | Expected Results: GSFC DAAC receives the email message. | |
| 50 | DAAC Ingest/Distribution Technician: Specify email address at EDC DAAC to which message is to be sent. Specify subject and body of message to be sent. Send email message to EDC DAAC. | |
| 60 | Expected Results: EDC DAAC receives the email message. | |
| 70 | DAAC Ingest/Distribution Technician: Specify email address at SMC to which message is to be sent. Specify subject and body of message to be sent. Send email message to SMC. | |
| 80 | Expected Results: SMC receives the email message. | |
| 90 | DAAC Ingest/Distribution Technician: Specify email address at EOC to which message is to be sent. Specify subject and body of message to be sent. Send email message to EOC. | |
| 100 | Expected Results: EOC receives the email message. | |
| 110 | DAAC Computer Operator: Verify that the email logs reflect the transmission of email message to GSFC DAAC and receipt of message acknowledgment. | |
| 120 | Expected Results: email logs must verify message transmission and receipt of acknowledgment. | |
| 130 | DAAC Computer Operator: Verify that the email logs reflect the transmission of email message to EDC DAAC and receipt of message acknowledgment. | |
| 140 | Expected Results: email logs must verify message transmission and receipt of acknowledgment. | |
| 150 | DAAC Computer Operator: Verify that the email logs reflect the transmission of email message to the SMC and receipt of message acknowledgment. | |
| 160 | Expected Results: email logs must verify message transmission and receipt of acknowledgment. | |
| 170 | DAAC Computer Operator: Verify that the email logs reflect the transmission of email message to the EOC and receipt of message acknowledgment. | |
| 180 | Expected Results: email logs must verify message transmission and receipt of acknowledgment. | |
| 190 | DAAC Resource Manager: Coordinate FTP transfer with GSFC DAAC, EDC DAAC, SMC, and EOC. | |

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| | | |
|---|---|---|
| 200 | DAAC Ingest/Distribution Technician: Access Communications Server and invoke FTP client. | |
| 210 | DAAC Ingest/Distribution Technician: Establish FTP connectivity with the GSFC DAAC. | |
| 220 | DAAC Ingest/Distribution Technician: Specify FTP destination at GSFC DAAC to which Planning, Scheduling, and Directive data files are to be sent. | |
| 230 | DAAC Ingest/Distribution Technician: FTP Planning and Scheduling data files to GSFC DAAC. | |
| 240 | DAAC Ingest/Distribution Technician: FTP Directive data file to GSFC DAAC. | |
| 250 | Expected Results: Message stating the transfer of the Planning, Scheduling, and Directive data files to the GSFC DAAC. | |
| 260 | DAAC Ingest/Distribution Technician: Establish FTP connectivity with the EDC DAAC. | |
| 270 | DAAC Ingest/Distribution Technician: Specify FTP destination at EDC DAAC to which Planning, Scheduling, and Directive data files are sent. | |
| 280 | DAAC Ingest/Distribution Technician: FTP Planning and Scheduling data files to EDC DAAC. | |
| 290 | DAAC Ingest/Distribution Technician: FTP Directive data file to EDC DAAC. | |
| 300 | Expected Results: Message stating the transfer of the Planning, Scheduling, and Directive data files to the EDC DAAC. | |
| 310 | DAAC Ingest/Distribution Technician: Establish FTP connectivity with the SMC. | |
| 320 | DAAC Ingest/Distribution Technician: Specify FTP destination at the SMC to which Planning, Scheduling, and Directive data files are sent. | |
| 330 | DAAC Ingest/Distribution Technician: FTP Planning and Scheduling data files to the SMC. | |
| 340 | DAAC Ingest/Distribution Technician: FTP Directive data file to the SMC. | |
| 350 | Expected Results: Message stating the transfer of the Planning, Scheduling, and Directive data files to the SMC. | |
| 360 | DAAC Ingest/Distribution Technician: Establish FTP connectivity with the EOC. | |
| 370 | DAAC Ingest/Distribution Technician: Specify FTP destination at the EOC to which Planning, Scheduling and Directive data files are sent. | |
| 380 | DAAC Ingest/Distribution Technician: FTP Planning and Scheduling data files to the EOC. | |
| 390 | DAAC Ingest/Distribution Technician: FTP Directive data file to the EOC. | |
| 400 | Expected Results: Message stating the transfer of the Planning, Scheduling, and Directive data files to the EOC. | |
| 410 | DAAC Resource Manager: Coordinate email transfer with the SMC. | |
| 420 | DAAC Ingest/Distribution Technician:  Receive email message from the SMC. | |

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| | | |
|---|---|---|
| 430 | Expected Results: email logs must verify receipt of email message from the SMC and transmission of message receipt acknowledgment to the SMC. | |
| 440 | DAAC Resource Manager: Coordinate FTP transfer with the SMC. | |
| 450 | DAAC Ingest/Distribution Technician: Access Communications Server and invoke FTP client. | |
| 460 | DAAC Ingest/Distribution Technician: Establish FTP connectivity with the SMC. | |
| 470 | Expected Results: Receipt of Planning, Scheduling, and Directive data files from the SMC. | |
| 480 | DAAC Computer Operator: Verify that the FTP logs reflect the receipt of the Planning, Scheduling, and Directive data files from the SMC and the transmission of the message receipt acknowledgment to the SMC. | |
| 490 | DAAC Resource Manager: Coordinate email transfer with the EOC. | |
| 500 | DAAC Ingest/Distribution Technician: Receive email message from the EOC. | |
| 510 | Expected Results: email logs must verify receipt of email message from the EOC and transmission of message receipt acknowledgment to the EOC. | |
| 520 | DAAC Resource Manager: Coordinate FTP transfer with the EOC. | |
| 530 | DAAC Ingest/Distribution Technician: Access Communications Server and invoke FTP client. | |
| 540 | DAAC Ingest/Distribution Technician: Establish FTP connectivity with the EOC. | |
| 550 | Expected Results: Receipt of Planning, Scheduling, and Directive data files from the EOC. | |
| 560 | DAAC Computer Operator: Verify that the FTP logs reflect the receipt of the Planning, Scheduling, and Directive data files from the EOC and the transmission of the message receipt acknowledgment to the EOC. Compare records of messages sent to GSFC DAAC, EDC DAAC, SMC and EOC with the logs that contain the message receipt acknowledgments. | |
| 570 | Tester: Coordinate a printout of messages received at all of the sites for later analysis. | |

**Data Reduction and Analysis Steps:**

A. The following materials must be secured for analysis at the end of the procedure:

  1. email Log Printout

  2. Administrator Log Printout of FTP Activities.

B. Analysis of the email Log Printout must verify that all email activities are completed to required specifications.

C. Compare messages received to messages sent. Email transmissions must verify that the integrity of the messages is consistent before and after transmission.

D. Analysis of FTP Log Printout must verify that the files are transferred to the required directory without corruption.

| **Signature:** | **Date:** |
|---|---|

### 12.1.2 Multi-Site System Management Sequence

This sequence of tests verifies the capabilities of the LaRC DAAC to support multi-site scheduling of activities related to TRMM instrument data ingest, retrieval and distribution and to support AM-1 interfaces. This sequence also verifies the capability to interface and exchange schedule related messages and data with the other DAACs, SMC, EDOS, SDPF and NOAA ADC.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e. other ECS sites and data sources) needed for this sequence (both real and simulated) are listed:

> Simulated Science User
>
> SMC
>
> SDPF
>
> GSFC ECS DAAC
>
> EDOS Simulator

**Operator Position(s)**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607/OP2) needed to support this sequence are listed:

> DAAC Resource Manager
>
> DAAC Archive Manager
>
> DAAC Resource Planner
>
> DAAC Production Planner

**Operational Scenario(s)**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release-A document (605/OP1), that were used to develop tests in this sequence of tests are listed:

> Resource Planning Scenario (Section 3.7.1)

**Test Dependencies**: The following table identifies the test procedure(s) in a sequence of tests that should be run prior to or concurrently with a sequence or test procedure.

| Test Procedure No. | Site/Procedure No. | Comments |
|---|---|---|
| A120110.020$L | | prior |
| | | |

## 12.1.2.1  Schedule Generation, Coordination and Adjudication Support

| TEST Procedure No.:<br>A120120.010$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | Schedule Generation, Coordination and Adjudication Support | |
| **Objective:** | This Procedure tests the capabilities of the ECS to exchange relevant schedule and resource data among ECS elements and external entities.  It tests the ability to generate schedule related inputs and coordinate an overall EOSDIS schedule among the responsible parties.  This procedure also tests the capability of the ECS to negotiate schedule conflicts, and develop an adjudicated schedule for the resolution of these conflicts. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS2020#A | This requirement is verified through demonstration.<br><br>Each DADS shall have the capability to receive data availability schedules at a minimum, from:<br>a.<br>c. ADCs<br>e. Other DADS<br>f. TRMM (SDPF)<br><br>This requirement verifies the data availability schedule is received with the proper information via telephone, fax, hard copy, or email.<br><br>Note: Only item "f", TRMM (SDPF), is verified in this procedure. |
| PGS-0140#A | This requirement is verified through test.<br><br>The PGS shall provide tools to help the PGS staff create and modify SDPS plans, schedules, and lists.<br><br>This requirement verifies that the Production Planner creates a new production plan and modifies an existing plan or schedule.  It also verifies that the planning subsystem creates and maintains a record of updates that have been made. |
| PGS-0170#A | This requirement is verified through test.<br><br>The PGS shall receive priority assignments, schedule conflict resolutions, and other operational directives.<br><br>This requirement verifies the system's capability to schedule conflict resolution's locally at the LaRC DAAC. |
| PGS-0290#A | This requirement is verified through test.<br><br>The PGS shall make electronic copies of its plans and schedules available to the IMS, the SMC, and the collocated DADS.<br><br>This requirement verifies the Planning subsystem sends the Candidate Plan and the Active Plan to the Data Server for storage and distribution. |

| PGS-0300#A | This requirement is verified through test. |
| --- | --- |
| | The PGS shall have the capability for an operator to interactively review and update the current data processing schedule. |
| | This requirement verifies that the system allows the operation staff to view the Processing Queue; terminate the data staging process for a Data Processing Request; cancel the processing of a Data Processing Request; and request status of a Data Processing Request. |
| | "Current data processing schedule" = Active Plan. |
| **Test Inputs:   Simulated Schedules from SDPF** | |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| | **Assumption:** Resource Planner has received ground events that need to be scheduled. | |
| 10 | DAAC Production Planner: Receives Data Availability Schedule (DAS)from the SDPF. Develops and sends the Resource Planner production resource requirements/schedules. | |
| 20 | Expected Result: Resource Planner receives resource request from Production Planner. | |
| 30 | DAAC Resource Planner: Invokes the resource planning system. | |
| 40 | Expected Result: Planning system menu is displayed with two selection options: 'Create NEW plan' and 'Modify existing plan'. | |
| 50 | DAAC Resource Planner: Selects a plan. | |
| 60 | DAAC Resource Planner: Enters the following types of request data into menu displayed: ground event, description, start time, and duration. | |
| 70 | DAAC Resource Planner: After entering the required inputs, sends the requests to the resource planning system. | |
| 80 | Expected Result: System receives the requests and notifies the Resource Planner of the receipt. The ground event requests are processed and production resources are allocated for implementation automatically. The system builds the resource plan and sends it to the Resource Planner | |
| 90 | DAAC Resource Planner: Receives the resource plan. Sends the Resource Schedule to the Production Planner. | |
| 100 | Expected Result: Production Planner receives Resource Plan. | |
| 110 | DAAC Production Planner: Invokes the Planning Subsystem. | |
| 120 | Expected Results: Planning Subsystem displays a menu for schedule generation and evaluation. | |
| 130 | DAAC Production Planner: Generates, review, approves, and activate the plan. Sends the plan to the SMC and to other DAACs. | |
| 140 | Expected Results: Production Planner receives Schedule Directive from the SMC. | |
| 150 | DAAC Production Planner: Reviews the Schedule Directive and make any necessary modification to Production Plan. | |
| **Data Reduction and Analysis Steps:** | | |
| | | |
| **Signature:** | | **Date:** |

## 12.1.2.2 TRMM and AM-1 Resource Scheduling Support

| TEST Procedure No.:<br>A120120.020$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | TRMM and AM-1 Resource Scheduling Support | |
| **Objective:** | This procedure tests the capabilities of the ECS to support the coordination of resource scheduling and allocation among the DAACs, EDOS, SDPF and across EBnet.  Also, this procedure tests the capability of the LaRC  DAAC to receive delivery schedules and delayed products status information from SDPF. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS2020#A | This requirement is verified through demonstration.<br><br>Each DADS shall have the capability to receive data availability schedules at a minimum, from:<br>a.<br>c. ADCs<br>e. Other DADS<br>f. TRMM (SDPF)<br><br>This requirement verifies the data availability schedule is received with the proper information via telephone, fax, hard copy, or email.<br><br>Note: Only items "a" and "f", EDOS and TRMM (SDPF), are verified in this procedure. |
| TRMM1050#A | This requirement is verified through demonstration.<br><br>SDPF shall send a notification to the ECS systems at the LaRC DAAC upon availability of CERES Level 0 production or quick-look data.<br><br>The SDPF must send notification to the LaRC ECS DAAC indicating the availability of CERES Level 0 production and/or quick-look data. The DAAC Ingest/Distribution Technician verifies that a data availability notification/schedule has been sent by SDPF prior to ingest of the CERES Level 0 data. |
| TRMM1195#A | This requirement is verified through test.<br><br>SDPF shall send a notification to the ECS systems at the LaRC DAAC upon availability of predictive or definitive orbit data.<br><br>The SDPS must send notification to the LaRC ECS DAAC indicating the availability of predictive or definitive orbit data.  The DAAC Ingest/Distribution Technician verifies that the SDPF sends a data availability schedule indicating the availability of the data for ingest at the LaRC DAAC. |
| **Test Inputs:** | **NOTE: Schedules and Delayed Product Status are sent via telephone, fax, hard copy, or email.** |

| | Step-By-Step Procedures | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| | **Assumption:** DAAC Resource Planner receives ground events that need to be scheduled. | |
| 10 | DAAC Resource Planner: Invoke the resource planner to generate a production schedule. | |
| 20 | Expected Results: The Planning Menu is displayed. | |
| 30 | DAAC Resource Planner: Create a new Production Plan. Enter required inputs and submit the request to the system. | |
| 40 | Expected Results: The system acknowledges the receipt of the request.  The system processes the request(s) and automatically allocates resources.  The system builds the resource plan and sends it to the Resource Planner. | |
| 50 | DAAC Resource Planner: Receives the resource plan and Emails a copy to the Archive Manager. | |
| 60 | DAAC Archive Manager: Allocates the resources according to the plan and notifies the Resource Planner. | |
| 70 | Expected Results: Resource Planner receives notification of the resource allocation from the Archive Manager. | |
| | **PAUSE** | |
| | **Receipt of a Delayed Product Status** | |
| 80 | DAAC Production Planner: Receives a Delayed Product Status from SDPF via phone, fax, hard copy, or email. Starts the planning workbench. | |
| 90 | Expected Results: AutoSys TimeScape GUI is displayed. | |
| 100 | DAAC Production Planner: Opens the current weekly plan being used for activation/schedule seeding operation.  Select 'Update Plan' from the Option menu. | |
| 110 | Expected Results:  Production Planning Workbench GUI is displayed. | |
| 120 | DAAC Production Planner: Makes the necessary adjustments in the schedule.  Once all the adjustments are made, selects 'Activate Plan' from the Option menu in the AutoSys TimeScape GUI. | |
| 130 | Expected Results: Production Plan Activation GUI is displayed. | |
| 140 | DAAC Production Planner: Enters the time range of the scheduling period (current time to end of shift) and enters any comments regarding the schedule.  Selects 'Activate' button. | |
| 150 | Expected Results: The system creates an ordered list of the activities which are currently active and integrates this list with other activities that may be scheduled within the scheduling window or time period. | |
| **Data Reduction and Analysis Steps:** | | |
| **Signature:** | | **Date:** |

### 12.1.2.3 SMC Support to Integration Test & Simulation Activities

This test is not performed at the GSFC DAAC.

## 12.2 TRMM Mission Support Scenario

The Tropical Rainfall Measurement Mission (TRMM) scenario covers the entire range of ECS activities involved in ingesting, archiving and distributing TRMM data products. This scenario verifies the capability of the ECS to support end-to-end TRMM mission operations and exercises the capabilities needed to perform multi-step TRMM data searches and analyses, together with associated data support functions. This scenario also proves the ECS capabilities to receive, store and access Ceres level 0 data at the LaRC DAAC via SDPF and Visible Infrared Scanner (VIRS) data (e.g., L1A-L3B data and metadata, browse data, algorithms and documentation) received by the GSFC DAAC via the TSDIS. The scenario verifies the capability of the ECS to produce higher level CERES at the LaRC DAAC.

### 12.2.1 SDPF Data Handling and Processing Sequence

This sequence verifies the ECS capability in a multi-DAAC environment to ingest and store at the LaRC DAAC CERES data from the SDPF, and to process and archive higher level/standard products for later distribution to requesting users. In addition, the capability of ECS operations personnel to ingest multiple TRMM products from the SDPF is also verified.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CSS/MSS, DMS, DSS, INS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e. other ECS sites and data sources) needed for this sequence (both real and simulated) are listed:

SDPF

SMC

**Operator Position(s)**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607/OP2) needed to support this sequence are listed:

DAAC Production Planner

DAAC Production Monitor

DAAC Resource Manager

DAAC Ingest/Distribution Technician

**Operational Scenario(s)**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release-A document (605/OP1), that were used to develop tests in this sequence of tests are listed:

TRMM Level 0 Data Ingest Scenario (Section 3.9.1)

TRMM Ancillary Data Ingest Scenario (Section 3.9.3)

Routine Production Planning Scenario (Section 3.12.1)

**Test Dependencies**: There are no test dependencies needed for this sequence of tests.

## 12.2.1.1 Retrieve CERES Data from SDPF, Process and Archive Standard CERES Products at LaRC DAAC

| TEST Procedure No.:<br>A120210.010$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | Retrieve CERES Data from SDPF, Process and Archive Standard CERES Products at LaRC DAAC | |
| **Objective:** | This test verifies that CERES level 1A through level 3B data, metadata, and browse data can be ingested and archived by ECS operators at the LaRC DAAC. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS0475#A | This requirement is verified through test.<br><br>The DADS shall provide storage for the following TRMM data:<br>a. L1A-L4 equivalent data products<br>b. Associated correlative data sets<br>c. Associated ancillary data sets<br>d. Associated calibration data sets<br>e. Associated metadata<br>f. Documents<br>g. Algorithms.<br><br>During the test, the production planner allocates the required resources for the data to be ingested and ensures that the storage needed for this data is available.<br>Items f and g are not verified in this test. |
| DADS1805#A | This requirement is verified through demonstration.<br><br>The DADS shall provide an inventory system capable, at a minimum, of the following:<br>a. Accepting the number of new inventory entries, one per granule, for the number of granules per day as specified in Appendix C<br>b. Uniquely identifying each data granule<br>c. Tracking the physical location of each data granule.<br><br>The tester monitors ingest activities, and verifies that the inventory uniquely identifies each granule and the physical location of the ingested data. |

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|---|---|
| PGS-0510#A | This requirement is verified through test.<br><br>The PGS shall have the capability to generate metadata (see Appendix C) according to the algorithms provided by the scientists and associate this metadata with each Standard Product generated.<br><br>This requirement is verified during the validation of the metadata. |
| PGS-1315#A | This requirement is verified through analysis.<br><br>Each PGS shall have the capacity to support I/O to temporary and intermediate storage or multiple passes over input products as required by individual science algorithms.<br><br>The storage capacity will be monitored throughout the test. The results will then be analyzed to determine if the storage capacity is sufficient. |
| TRMM1010#A | This requirement is verified through test.<br><br>The ECS systems at the LaRC DAAC shall ingest CERES Level 0 and quick-look data from sets from SDPF.<br><br>The LaRC DAAC must ingest CERES Level 0 and quick-look data sets from SDPF. The DAAC Ingest/Distribution Technician verifies that the Ingest History Log is updated upon completion of the ingest process. |
| TRMM1060#A | This requirement is verified through test.<br><br>The ECS systems at the LaRC DAAC shall, after notification by SDPF, retrieve CERES Level 0 production by an agreed-upon file transfer protocol.<br><br>The INGST CI at the LaRC DAAC must ingest data provided by the SDPF from the ESN using file transfer protocol. |
| TRMM1070#A | This requirement is verified through demonstration.<br><br>The ECS systems at the LaRC DAAC shall ensure that CERES data has been received and validated.<br><br>The LaRC DAAC must ensure that the CERES Level 0 data has been received from SDPF. The DAAC Ingest/Distribution Technician verifies that a data availability schedule has been sent from SDPF indicating the availability of the CERES Level 0 data for ingest at the LaRC DAAC.<br>This test procedure only covers reference to "received". |

| | |
|---|---|
| TRMM1080#A | This requirement is verified through test.<br><br>The ECS systems at the LaRC DAAC shall acknowledge successful receipt of a CERES data set from the SDPF.<br><br>The LaRC DAAC must send a Data Delivery Acknowledgment (DDA) notice to the SDPF indicating the successful receipt of the CERES Level 0 data. |
| TRMM1110#A | This requirement is verified through test.<br><br>SDPF shall provide a CERES Level 0 data set to the ECS systems at the LaRC DAAC once per day within 24 hours of the last acquisition session.<br><br>**A CCR is in the process of being written to add "External only requirement. Information only. No action is required by ECS" in the req_interpretation field.** |
| TRMM1130#A | This requirement is verified through test.<br><br>The ECS systems at the LaRC DAAC shall receive CERES scheduled quick-look from SDPF 3 times per day plus occasional special quick-look data sets.<br><br>The LaRC DAAC must receive CERES scheduled quick-look from SDPF 3 times per day plus occasional special quick-look data sets. |
| TRMM1150#A | This requirement is verified through demonstration.<br><br>SDPF shall notify the ECS systems at the LaRC DAAC of availability of a CERES quick-look data set within 2 hours of the end of the acquisition session.<br><br>**A CCR is in the process of being written to add "External only requirement: Information only. No action is required by ECS." in the req_interpretation field.** |
| TRMM1180#A | This requirement is verified through test.<br><br>ECS shall be able to process SDPF Level 0 and quick-look data sets in SPDF-defined format.<br><br>The LaRC ECS DAAC must be able to process SDPF Level 0 and quick-look data sets in SDPF-defined format. |
| TRMM1200#A | This requirement is verified through demonstration.<br><br>The ECS systems at the LaRC DAAC shall ingest predicted orbit data from the SDPF.<br><br>The SDPF must send predicted orbit data to the ECS at the LaRC DAAC. The DAAC Ingest/Distribution Technician verifies that SDPF sends predicted orbit data for ingest at the LaRC DAAC. |

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| TRMM1280#A | This requirement is verified through test. |
|---|---|
| | ECS shall be able to accept CERES simulated data from SDPF. |
| | The SDPF must send CERES simulated data to the LaRC DAAC. The DAAC Ingest/Distribution Technician verifies that SDPF sends a data availability schedule indicating the availability of CERES simulated data for ingest at the LaRC DAAC. |
| TRMM8100#A | This requirement is verified through test. |
| | ECS shall process CERES and LIS Level 0 and quick-look data sets received from SDPF for early interface testing. |
| | The LaRC DAAC must process CERES Level 0 sets received from SDPF for early interface testing. |
| | This test procedure does not cover reference to "LIS". |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| CERESTRMM0_001 | TBD | TBD | One days worth of CERES Level 0 science data in PDS format. | 1 |
| CERESTRMM0_002 | TBD | TBD | One days worth of CERES Level 0 expedited data in PDS format. | 1 |
| TRMMEPHEM_001 | TBD | TBD | One days worth of TRMM Platform Ephemeris, 1 file in binary EPHEM format | 1 |

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| Step No. | Input Action / Expected Results | Pass / Fail / Comments |
|---|---|---|
| | **Step-By-Step Procedures** | |
| 10 | Tester: Query data server for existence of any of the files that are to be ingested during this procedure. Files should not exist. | |
| | **Setup CERES Data Processing**<br><br>The CERES data processing steps make one pass through the production of "daily" data products. The execution of data processing is under the automated control of Autosys. Whenever the planning system starts a production job or PGE, the steps relating to that particular PGE are executed. The initiation of the PGEs and the staging of input data for each PGE is done manually (rather than upon receipt of ingest and subscription data) | |
| 20 | Production Planner: Notes the jobs scheduled for processing today in the month long current active plan. The Production Planner, using the planning workbench software, initiates the "downloading" of the daily schedule of jobs to the Autosys scheduling tool. (Details on the execution of this test are under development.) | |
| 30 | Expected Results: System converts DPRs into Autosys commands using the Autosys JIL interface. Autosys displays each DPR in a job box which contains all the required jobs for a PGE. Autosys automatically places the jobs in a "held" state while waiting on their data dependencies. | |
| 40 | Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software as subscription requests are fulfilled. | |
| 50 | Expected Results: The subscription manager software releases the appropriate DPRs from their "held" state as the subscription notifications arrive. This process is automatic and requires no operator intervention. | |
| 60 | Production Monitor: Uses the Autosys Screen to observe and determine processing status of all DPRs. | |
| | **INGEST ACTIVITY** | |
| | **Start SDPF CERES Expedited Data Transfer** | |
| 70 | Tester: Coordinate with SDPF for transfer of data set CERESTRMM0_002 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 80 | Expected Results: CERES Expedited data is ingested and archived. | |
| | **Start SDPF CERES Level 0 Data Transfer** | |
| 90 | Tester: Coordinate with SDPF for transfer of data set CERESTRMM0_001 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 100 | Expected Results: CERES Level 0 data is ingested and archived. | |

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|---|---|---|
| 110 | Tester: Coordinate with SDPF for transfer of TRMM Ephemeris data and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 120 | Expected Results: TRMM Ephemeris data is ingested and archived | |
| | **END OF INGEST ACTIVITY** | |
| | | |
| | **CERES DATA PROCESSING ACTIVITY** | |
| | **Start CERES Level 0 Data Processing** | |
| 130 | Tester:  Stages the CERES level 0 and ancillary data and initiates the DPR. | |
| 140 | Expected Results: The subscription manager software releases the DPR for processing of the Level 0 data from its "held" state.  This process is automatic and requires no operator intervention. | |
| 150 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 160 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 170 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 180 | Expected Results: The PGE processes the data.  Bi-Directional SCANS (BDS) and Instrument Earth Scans (IES) data files are produced and sent to the data server for archival. | |
| 190 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 200 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES Level 0 Data Processing** | |
| | | |
| | **Start ERBE-Like CERES Processing** | |
| 210 | Tester:  Stage data for ERBE-Like production of ES8 data product. | |
| 220 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 230 | Expected Results: The subscription manager software releases the DPR for processing of the BDS data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention. The BDS data is retrieved from the data server. | |
| 240 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |

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|---|---|---|
| 250 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 260 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 270 | Expected Results: The PGE processes the data. ERBE Instantaneous (ES8) data files are produced and sent to the data server for archival. | |
| 280 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 290 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| **End ERBE-Like CERES Processing** | | |
| | | |
| **Start CERES MOA Data Production** | | |
| 300 | Tester: Stage data for Atmospheric Structures (MOA) data production. Data inputs include the APD, GAP, OPD and MWH data. | |
| 310 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 320 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The APD, GAP, OPD and MWH data are retrieved from the data server. | |
| 330 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 340 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 350 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 360 | Expected Results: The PGE processes the data. MOA data files are produced and sent to the data server for archival. | |
| 370 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 380 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| **End CERES MOA Data Production** | | |
| | | |
| **Start CERES SSF and CRF Data Production** | | |

| | | |
|---|---|---|
| 390 | Tester: Stage data for Cloud Properties,TOA, and Surface Fluxes (CRF) data production. Data inputs include the IES internal products, VIRS, TMI, and MODIS data from GSFC DAAC, Surface Maps, and Clear Reflectance Temperature History (CRH). Output Product is Single Satellite CERES Footprint, TOA and Surface Flux, Clouds data . | |
| 400 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 410 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The required data are retrieved from the data server. | |
| 420 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 430 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 440 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 450 | Expected Results: The PGE processes the data. SSF and CRH data files are produced and sent to the data server for archival. | |
| 460 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 470 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SSF and CRF Data Production** | |
| | | |
| | **Start CERES CRS Data Production** | |
| 480 | Tester: Stage data for production of Single Satellite CERES Footprint, Radiative Fluxes and Clouds data (CRS). Data inputs include the SSF data and surface maps | |
| 490 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 500 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The SSF data and surface maps are retrieved from the data server. | |
| 510 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |

| | | |
|---|---|---|
| 520 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 530 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 540 | Expected Results: The PGE processes the data. CRS files are produced and sent to the data server for archival. | |
| 550 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 560 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES CRS Data Production** | |
| | | |
| | **Start CERES FSW Data Production** | |
| 570 | Tester: Stage data for production of Hourly Gridded Single Satellite Fluxes and Clouds (FSW) data. Data input consists of CRS data | |
| 580 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 590 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The CRS data are retrieved from the data server. | |
| 600 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 610 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 620 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 630 | Expected Results: The PGE processes the data. FSW files are produced and sent to the data server for archival. | |
| 640 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 650 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES FSW Data Production** | |
| | | |
| | **Start CERES GGEO Data Production** | |

| | | |
|---|---|---|
| 660 | Tester: Stage data for production of ISCCP Gridded Radiances (GGEO) data. Data input consists of ISCCP GEO data received from the LaRC V0 DAAC | |
| 670 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 680 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The GEO data are retrieved from the data server. | |
| 690 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 700 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 710 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 720 | Expected Results: The PGE processes the data. GGEO files are produced and staged for CERES SYN processing. | |
| 730 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 740 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES GGEO Data Production** | |
| | | |
| | **Start CERES SYN Data Production** | |
| 750 | Tester: Stage data for production Synoptic Radiative Fluxes and Clouds (SYN) data. Data input consists of FSW, GGEOand MOA data. | |
| 760 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 770 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The MOA and FSW data are retrieved from the data server. | |
| 780 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 790 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |

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|---|---|---|
| 800 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 810 | Expected Results: The PGE processes the data. SYN files are produced and sent to the data server for archival. | |
| 820 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 830 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SYN Data Production** | |
| | | |
| | **Start CERES SFC Data Production** | |
| 840 | Tester: Stage data for production of Hourly Gridded Single Satellite TOA and Surface Fluxes (SFC) data. Data input consists of SSF data. | |
| 850 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 860 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The SSF data are retrieved from the data server. | |
| 870 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 880 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 890 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 900 | Expected Results: The PGE processes the data. SFC files are produced and sent to the data server for archival. | |
| 910 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 920 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SFC Data Production** | |
| | **END CERES DATA PROCESSING ACTIVITY** | |
| | | |
| | | |
| | **SDPF Data Ingest Steps** These steps are executed for each TRMM data ingest from SDPF. | |
| 5000 | Ingest-Distribution Technician: invokes the Ingest Status Monitor tool (GUI display) from the main Ingest GUI screen. | |

| 5010 | Expected Results: The System identifies ongoing ingest requests (stored in Sybase tables) and displays them. | |
|---|---|---|
| 5020 | SDPF: Application software automatically sets up to transfer Level 0 data to ECS. A Data Availability Notice (DAN) is sent to ECS. | |
| 5030 | Expected Results: The System automatically checks the received DAN and returns a DAA. The INGST CSCI automatically checkpoints request information extracted from the DAN into a Sybase data base. The System automatically coordinates the Level 0 data transfer with the SDPF using ftp services. | |
| 5040 | SDPF: A Data Availability Acknowledgment (DAA) is received. | |
| 5050 | Ingest-Distribution Technician: Reviews Ingest Status Monitor display. The Technician looks for ingest requests that have been queued for more than a few minutes. | |
| 5060 | Expected Results: The System automatically extracts metadata from transferred Level 0 data, checks the metadata (e.g., range checks), and inserts the data and metadata into the Level 0 Data Server component of the Ingest Subsystem. | |
| 5070 | Expected Results: Request state (active, file transferred, data insertion complete, etc.) is updated in the checkpointed request information. | |
| 5080 | Ingest-Distribution Technician: Reviews the MSS Event Log to visually determine anomalous conditions (e.g., a pattern of metadata check errors). | |
| 5090 | Expected Results: The System automatically logs events by means of the MSS Event Logging capability. "Events" include detection of out-of-range metadata values, incompletely- transferred data files, etc | |
| 5100 | SDPF: Application software receives a Data Delivery Notice (DDN), indicating the status of the Level 0 data ingest. | |
| 5110 | Expected Results: Upon completion of data insertion into the Data Server, status is automatically returned to the data provider (SDPF) by means of the DDN. | |
| 5120 | SDPF: Application software transmits a Data Delivery Acknowledgment (DDA) to acknowledge receipt of the DDN. | |
| 5130 | Expected Results: After receipt of a DDA, on- going ingest request information is deleted. Summary information is retained in the Sybase data base (as Ingest History Log data). | |
| 5140 | Ingest-Distribution Technician: Observes the removal of the completed ingest request from the Status Monitor display. | |
| 5150 | Expected Results: Upon completion successful of data insertion into the Data Server, the SDSRV CI automatically determines the existence of subscriptions on the receipt of the TRMM Level 0 data. A subscription notice is sent to the requesting entity. | |
| 5160 | Ingest-Distribution Technician: Views summary information about completed ingest requests using the GUI Ingest History Log tool. | |

| 5170 | Expected Results: The System provides access to Sybase data base tables containing summary information on completed ingest requests, including completion status, data volume ingested, etc | |
| --- | --- | --- |
| 5180 | Ingest-Distribution Technician: Generates a summary report on completed ingest requests. | |
| 5190 | Expected Results: The report (in two parts) gives summary statistics (e.g., number of data granules ingested, data volume ingested) and error statistics (e.g., number of errors of a given type encountered) for a specified time range. | |
| | **END SDPF Data Ingest Steps** | |
| | | |
| | **Procedure Wrapup** | |
| 9000 | Ingest/Distribution Tech: Review Ingest History Log and status display | |
| 9010 | Tester: Query data server for existence of the files that were ingested and produced during this procedure. Files should exist. | |
| 9015 | Tester: Print MSS logs and ingest history logs. | |
| 9020 | Tester: Secure the following materials : <br> 1. MSS Log Printout <br> 2. Ingest History Log Printout <br> 3. Results of data server query for existing data files prior to procedure <br> 4. Results of data server query for existing data files after procedure | |

**Data Reduction and Analysis Steps:**

A. The following materials are required for analysis:
1. System Event Log Printout
2. Ingest History Log Printout
3. Results of data server query for existing data files prior to procedure
4. Results of data server query for existing data files after procedure

B. Retrieve all CERES Level 0 data files archived and verify that they match the files sent from the SDPF.

C. Retrieve ancillary data archived. Dump the data and verify that the data was reformatted during pre-processing .

D. Retrieve and analyze the metadata for each granule ingested and created during processing. Verify that the granule accounting tracks the location of each granule and its processing history.

| Signature: | Date: |
| --- | --- |
| Witness Signature: | Date: |

## 12.2.2 TSDIS Data Handling Sequence

This sequence is not executed at LaRC. It is contained in the GSFC ECS DAAC volume of the test procedures.

## 12.2.3  TRMM Data Product Distribution Sequence

The TRMM Data Product Distribution Sequence tests the capability of the LaRC DAAC to distribute the SDPF higher level CERES data and products to users at the CERES SCF.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, DPS, DSS, INS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e. other ECS sites and data sources) needed for this sequence (both real and simulated) are listed:

   CERES SCF (Real or Simulated)

**Operator Position(s):** The operator positions from the ECS Maintenance and Operations Position Descriptions document (607/OP2) needed to support this sequence are listed:

   DAAC Ingest/Distribution Technician

**Operational Scenario(s)**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release-A document (605/OP1), that were used during this sequence of tests are listed:

   Network Data Distribution (Pull) Scenario (nominal) (Section 3.11.1)

**Test Dependencies**: There are no test dependencies needed for this sequence of tests.

## 12.2.3.1  TRMM Data Product Distribution

| TEST Procedure No.:<br>A120230.010$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | TRMM Data Product Distribution | |
| **Objective:** | The TRMM Data Product Distribution Test verifies the capability of the LaRC DAAC operators to  distribute the SDPF higher level CERES data and products to users at the CERES SCF. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS2380#A | This requirement is verified through demonstration.<br><br>Each DADS shall send to the SCF, at a minimum, the following:<br>a. L0-L4<br>b. Expedited data<br>d. Metadata<br>e. Ancillary data<br>f. Calibration data<br>g. Correlative data<br>h. Documents<br>i. Algorithms<br><br>During the test, the tester utilizes the V0 Client and the CERES SCF simulator to search for CERES data products and request a PULL transfer of the products. The request is received at the LaRC DAAC, processed, and the products are distributed to the CERES SCF simulator.<br><br>Items h and i are not verified in this test. |

| DADS2410#A | This requirement is verified through demonstration. |
|---|---|
| | Each DADS shall distribute data from the archive in response to receipt of a product order from the IMS. |
| | During the test, the tester utilizes the IMS to search for and order CERES data products. The data server receives the product order, places the data on a staging disk and distributes the product to the user. |
| SMC-6335#A | This requirement is verified through demonstration. |
| | The LSM shall, as needed, maintain and update a data tracking system that, at a minimum:<br>a. Tracks data transport from element input to element output<br>b. Allows the status of all product-production activities to be determined |
| | The MSS accountability management service must properly track the status of a data order from order submission to completion. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| CERESTRMM0_001 | TBD | TBD | One days worth of CERES Level 0 science data in PDS format. | 1 |
| CERESTRMM0_002 | TBD | TBD | One days worth of CERES Level 0 expedited data in PDS format. | 1 |
| CERESTRMM0_003 | TBD | TBD | One days worth of CERES Level 0 housekeeping data in PDS format. | 1 |
| TRMMEPHEM_001 | TBD | TBD | One days worth of TRMM Platform Ephemeris, 1 file in binary EPHEM format | 1 |

| Step-By-Step Procedures | | |
| --- | --- | --- |
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | Tester: Set up CERES SCF simulator. | |
| 50 | DAAC Ingest/Distribution Technician: Perform steps 200-320 for CERESTRMM0_001 data. | |
| 60 | DAAC Ingest/Distribution Technician: Perform steps 200-320 for CERESTRMM0_002 data. | |
| 70 | DAAC Ingest/Distribution Technician: Perform steps 200-320 for CERESTRMM0_003 data. | |
| 80 | DAAC Ingest/Distribution Technician: Perform steps 200-320 for TRMMEPHEM_001 data. | |
| 90 | Go to Wrap-up Sequence | |
| | | |
| | DATA DISTRIBUTION SEQUENCE | |
| 200 | Tester: Establish a client session to the data server and create a working collection of data. (Using the V0 Client, search for the specified data set). | |
| 210 | Expected Results: The Data Server assigns a session ID and logs(via MSS Logging Services) the initiation of the session. The Data Server logs and queues the search request sent by the user to create a working collection and searches the Metadata Database in accordance with the user's indicated search attributes when the request is reached in the request queue. Identified granules are returned to the user's working collection. | |
| 220 | Tester: Refines the contents of the working collection to specific granules of high interest and invokes an acquire(via ftp pull) service to obtain the high interest granules. | |
| 230 | DAAC Ingest/Distribution Technician: Track the progress of the request and review any errors recorded by using either the *other screens* option and selecting *Logs & Reports (MSS)* from DSS System Management main menu; or view status of actual request via the Distribution Management Component's *Requests* screen. | |
| 240 | Expected Results: The Data Server logs (via MSS Logging Services) and queues subsequent search requests to identify high interest granules and searches the Metadata Database in accordance with the user's refined search attributes when the request is reached in the request queue. The user's working collection is updated with the results of each subsequent search. Distribution Management logs (via MSS Logging Services) the Acquire Via ftp Pull Request and sends a Data Retrieval Request to Storage Management listing the granules of high interest to be retrieved and placed on the Pull Volume. | |

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| | | |
|---|---|---|
| 250 | DAAC Ingest/Distribution Technician: Review the progress of the request via either the *other screens* option and selecting *Logs & Reports (MSS)* from DSS System Management main menu or via Storage Management Component's *Logs & Reports (MSS)* submenu available on the *Other Screens* pull down menu. | |
| 260 | Expected Results: Storage Management logs ( via MSS Logging Services) and queues the Data Retrieval Request. When the request is reached in the request queue, Storage Management requests the appropriate granules be retrieved from the archive via the Archive Management OTS Product. The granules are placed on the Working Storage and transferred to the Pull Volume, the reference count for each file in those granules is incremented and a Data Retrieval Request completed message is logged and sent to Distribution Management. | |
| 270 | DAAC Ingest/Distribution Technician: View Pull Area Utilization data via the Storage Management Component's *Pull Area Utilization* screen. | |
| 280 | Expected Results: Distribution Management extracts the file names and path names associated with the high interest granules. A Retrieval Complete Notification is created which includes file and path names. This notification is sent to the requesting user's client or via email if no client is active. | |
| 290 | Tester: Retrieves the requested data from the DAACs Pull Volume. | |
| 300 | Expected Results: CSS Subsystem detects and logs (via MSS Logging Services) that an authorized user has accessed specific files on the Pull Volume. CSS provides a Pull Volume Access Notification to Storage Management which enumerates the path names and files retrieved by an associated user ID. | |
| 310 | DAAC Ingest/Distribution Technician: Verify request completion via either the *Other Screens* option and selecting *Logs and Reports (MSS)* from DSS System Management main menu, the Storage Management Component's *Logs and Reports (MSS)* submenu available on the *Other Screens* pull down menu, or the Distribution Management Component's *Request Screen*. | |
| 320 | Expected Results: Storage Management receives and logs (via MSS Logging Services) the Pull Volume Access Notification. Storage Management parses the notification and determines which files were retrieved by the user. The reference count for those files is decremented. | |
| | WRAP-UP SEQUENCE | |
| 330 | Tester: Secure the following materials: 1. Logs and Reports printout 2. Pull Area Utilization printout. 3. Dumps of data retrieved. | |

**Data Reduction and Analysis Steps:**

A. Confirm that the Logs and Reports printout and the Pull Area Utilization printout are complete for all search, acquire, and distribution actions taken during the procedure.

B. Confirm that data pulled was data requested and that data was uncorrupted by the transfer.

**Signature:** | **Date:**

## 12.2.4  Data Accounting Sequence

The Data Accounting Sequence demonstrates the ECS capability to perform data accounting of L1A-L3B, ancillary data, metadata, browse data, algorithms and documentation. This includes accounting for new data received, as well as data updates (the result of reprocessing) and data deletions.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, DPS, DSS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: There are no external interfaces needed for this sequence.

**Operator Position(s)**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607/OP2) needed to support this sequence are listed:

DAAC Resource Planner

**Operational Scenario(s)**: There are no operations scenarios taken from the Operations Scenarios for the ECS Project: Release-A, used during this sequence of tests.

**Test Dependencies**: The following table identifies the test procedure(s) in a sequence of tests that should be run prior to or concurrently with a sequence or test procedure.

| Test Procedure No. | Site/Procedure No. | Comments |
|---|---|---|
| A120240.020$L | A120230.010$L | Prior |

## 12.2.4.1  Data Product/Data Receipt Accounting

| TEST Procedure No.:<br>A120240.020$L | Date Executed: | | Test Conductor: | |
|---|---|---|---|---|
| **Title:** | Data Product/Data Receipt Accounting | | | |
| **Objective:** | The Data Product/Data Receipt Accounting Test verifies the ECS's ability to perform data accounting for level 1A through level 3B, ancillary data, metadata, browse data, algorithms and documentation.  Data accounting includes new data, data updates due to reprocessed data as well as data deletion; unless the ECS is directed by the appropriate authority not to delete data. | | | |
| **Requirements** | **Acceptance Criteria** | | | |
| DADS0880#A | This requirement is verified through test.<br><br>For data which it has distributed, each DADS, via the LSM, shall generate required accounting information.<br><br>During the test, distribution reports are generated and analyzed to confirm that accurate accounting information is generated for the data that was distributed in test procedure A120230.010$L. | | | |
| **Test Inputs:** | | | | |
| **Data Set Name** | **Data Set ID** | **File Name** | **Description** | **Version** |
| None. | | | | |

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| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | DAAC Resource Planner: Access the DDIST and generate the following reports: Distribution Profile, Media Distribution, Electronic Distribution, Push Utilization, and Distribution Error. | |
| 20 | Expected results: These reports must be available and contain the distribution information for test procedure A120230.010$L. | |
| **Data Reduction and Analysis Steps:** | | |
| A. The following materials must be secured for analysis at the end of the procedure:<br>1. Distribution Profile Report<br>2. Media Distribution Report<br>3. Electronic Distribution Report<br>4. Push Utilization Report<br>5. Distribution Error Report | | |
| B. Confirm that the aforementioned reports contain accounting information for all CERES data distributed in test procedure A120230.010$L. | | |
| **Signature:** | | **Date:** |

## 12.3 AM-1 End-to-End Scenario

This scenario is not executed at the LaRC DAAC. It is contained in the EOC volume of the test procedures.

## 12.4 Science Data Access and Interoperability Scenario

This scenario demonstrates that an EOS investigator can access, receive, exchange, and store assorted data sets and information among ECS DAAC sites. The scenario confirms that a scientist can perform multi-site data search and retrieval; retrieve science algorithms and produce science data products; and store the data products and associated metadata in formats compatible with these systems. The scenario describes the sequential process of searching for and accessing input data sets, including any required ancillary data; manipulating and analyzing these data sets; using corresponding algorithms to develop data products; generating and/or updating metadata descriptions of these products; and storing these products and the new metadata in standard formats within the ECS.

### 12.4.1 Science Data Search and Retrieval Sequence

This sequence of tests verifies that a science user can perform a sequential, multi-site search for selected data sets required to perform a desired science analysis. The scientist searches on-line catalogs and directories among data stored within the ECS DAACs to find the data relevant to the

science analysis to be performed. The scenario confirms the scientist's ability to request and receive these data using specified data set search characteristics, and to temporarily store these data for subsequent analysis and for higher level data product generation.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, DMS, DPS, DSS, INS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e., other ECS sites and data sources) needed for this sequence (both real and simulated) are listed:

GSFC ECS DAAC

**Operator Position(s)**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607/OP2) needed to support this sequence are listed:

DAAC Ingest/Distribution Technician

**Operational Scenario(s)**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release A document (605/OP1), that were used to develop tests in this sequence of tests are listed:

Network Data Distribution (Pull) Scenario (Section 3.11.1)

**Test Dependencies**: There are no test dependencies needed for this sequence of tests.

### 12.4.1.1 Multi-Site Data Search and Access

| TEST Procedure No.:<br>A120510.010$G | Date Executed: | Test Conductor: |
|---|---|---|

| Title: | Multi-Site Data Search and Access |
|---|---|

| Objective: | This procedure tests the capability of ECS to allow the user to perform data search and data access among all sites. |
|---|---|

| Requirements | Acceptance Criteria |
|---|---|
| DADS0570#A | This requirement is verified through test.<br><br>Each DADS shall verify product orders from the IMS.<br><br>This requirement verifies that the system insures that each Data Request and Service Request contains the necessary parameters to handle the request; verifies that all reported error and warning conditions are logged. |
| DADS1085#A | This requirement is verified through test.<br><br>Each DADS shall maintain a data access log.<br><br>This requirement verifies that the system provides the capability for the operation staff to view, sort by time frame, sort by source of access, and sort by data type the Data Access Log. |
| IMS-0600#A | This requirement is verified through demonstration.<br><br>The IMS shall provide the capability to search a directory of information that describes EOSDIS, non-EOSDIS, and ADC earth sciences data.<br><br>The WKBCH CI shall provide the user the capability to locate non-ECS data and services interoperable with ECS, and the registered user the capability to obtain ECS data and services. |
| IMS-0610#A | This requirement is verified through demonstration.<br><br>The IMS shall provide the capability to search the data inventory which describes each granule of EOSDIS data.<br><br>This requirement is verified when the WKBCH CI provide the user the capability to transparently search across any combination of Data Servers for stored EOSDIS Data Granules; the SDSRV CI accepts and processes Search Requests to search the Inventory; and the SDSVR CI support Inventory searches based on the Core Inventory Metadata. |

| Test Inputs: | | | | |
|---|---|---|---|---|
| Data Set Name | Data Set ID | File Name | Description | Version |

| Step-By-Step Procedures | | |
| --- | --- | --- |
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | Tester: Logs into ECS desktop; brings up Release A Search and Order Tool. | |
| 20 | Expected Results: The "Welcome" screen appears after all of the necessary information is entered. | |
| | **Directory Search** | |
| 30 | Tester: Selects Search Screen button. | |
| 40 | Expected Results: System displays the Search Screen. | |
| 50 | Tester: Selects Go To Directory. Selects "Global Change Master Directory" to review dataset holdings of various agencies and institutions. Click on "Yes" in the "You are entering the GCMD" dialog box. | |
| 60 | Expected Results: Instructions to initiate a GCMD session is displayed. | |
| 70 | Tester: Press the Return key to continue the message on the GCMD Welcome screen. | |
| 80 | Expected Results: System displays the information from the GCMD screen. | |
| 90 | Tester: Reviews the descriptions of the displayed datasets and note where they are located. Types "quit" to exit GCMD. | |
| 100 | Expected Results: The Welcome screen is displayed. | |
| 110 | Tester: Select the Search Screen button. | |
| 120 | Expected Results: The Search screen is displayed. | |
| 130 | Tester: Clicks on Source/Platform List button. | |
| 140 | Expected Results: The Valid list for Source/Platform is displayed. | |
| 150 | Tester: Selects DMSP-F8 and select the Guide Info button. Selects "dmsp f8.html" or similar document title. | |
| 160 | Expected Results: The document is displayed. | |
| 170 | Tester: Select "1." Document Information. | |
| 180 | Expected Results: The document information is displayed. | |
| 190 | Tester: Select Close to close the document. | |
| 200 | Expected Results: Document is closed and system returns to the Valid for Source/Platform window. | |
| 210 | Tester: Select Cancel. | |
| 220 | Expected Results: Valid for Source/Platform window closes. | |
| 230 | Tester: Selects Directory type search. Selects Dataset ID List button. Selects "SSM/I" as the search criteria to query the directory for SSM/I gritted brightness temperature data. Click on the OK button. Initialize the search by clicking on the Execute Search button. | |

| | | |
|---|---|---|
| 240 | Expected Results: The Communications Status screen is displayed with the status of the search and network activity. Observe the search until complete. | |
| 250 | Tester: Select the bolded Data button in the View column. | |
| 260 | Expected Results: The Directory results screen will be displayed | |
| 270 | Tester: Click on the count button for the "SSM/I gritted brightness temperature data" and observe that everything pertaining to the dataset is highlighted. Order the data and have it sent via ftp. | |
| 280 | Expected Results: The data is ordered and received as requested. | |
| 290 | Tester: Observe the Directory Results screen, the Communications Status screen, and the Search screen. | |
| 300 | Expected Results: The system allows multiple windows to be displayed simultaneous. | |
| 310 | Tester: Observe the buttons and pull down menus on each displayed screen. | |
| 320 | Expected Results: Each screen buttons and pull menus are functional and the user can randomly move through each field. | |
| 330 | Tester: Observe the use of non-standard keys (i.e., metacharacters such as Ctrl key, etc.). | |
| 340 | Expected Results: The user has minimal and consistent use of the keys on each screen. | |
| 350 | Tester: Perform a multi-site data search by specifying a search for both VIRS and CERES data. | |
| 355 | Expected Results: Communication Status screen appears listing the data centers that have the search attributes specified. | |
| 360 | Tester: Make some invalid selections in some of the fields on one of displayed screens. | |
| 370 | Expected Results: Self explanatory and meaningful error messages are displayed. | |
| 380 | Tester: Select the Help pull down menu on one of the displayed screens and observe the context-sensitive help menu. | |
| 390 | Expected Results: Help items are displayed and messages indicating direction are output for selections. | |
| 400 | Tester: Select Exit IMS. | |
| 410 | Expected Results: The V0 Client is disabled and user is returned to the Desktop. | |
| 420 | Tester: Initialize the Advertising Service to enables searches using the WWW. | |
| 430 | Expected Results: The Advertising Service is initialized. | |
| 440 | Tester: Initialize a search using the datasets: "AVHRR Pathfinder Land 10 Day Mosaics", "CHANGE SSM/I DERIVED RAIN INDICES", and "SRB_MONTHLY" as the search criteria. | |
| 450 | Expected Results: Mosaics or Netscape initialize a search for the datasets and displays the findings. | |
| 460 | Tester: Read the retrieved information on the datasets. | |
| | **Inventory Search** | |

| | | |
|---|---|---|
| 470 | Tester: Select the Search Screen button. | |
| 480 | Expected Results: The Search Screen is displayed. | |
| 490 | Tester: Select the search type - Inventory. Click on the Parameters List button. | |
| 510 | Expected Results: The Valid list for Parameters is displayed. | |
| 520 | Tester: Select "ANTENNA TEMPERATURE", "OZONE", and "RADIANCE" parameters and then select the OK button. | |
| 530 | Expected Results: The Valid list for Parameters is closed. | |
| 540 | Tester: Select the Number of Granules returned per Dataset. Reduce the number of granules to 30 (from the default of 100). Select the Geographic Information area and select the None button. | |
| 560 | Expected Results: A menu is displayed. | |
| 570 | Tester: Select Point on the menu and enter "53" in the Latitude field and "170" in the Longitude" field. Initialize the execution of the search. | |
| 590 | Expected Results: The Communications Status screen is displayed. The search message is going out to all of the data centers that hold relevant data or that were specified in the search. Monitor until complete. | |
| 600 | Tester: Select the Data button in the LaRC row. | |
| 610 | Expected Results: The Inventory Results screen is displayed. | |
| 620 | Tester: Select "AVHRR-LAC" with Latitude = 80.57, Longitude = 166.82 and any start date and time by clicking on the granule. Mark the granule for Detail Info and select the selection list button. | |
| 640 | Expected Results: Observe the granule selected | |
| 650 | Tester: Select the Inventory Results button, Goto Detailed Information For Granules. | |
| 660 | Expected Results: The Detailed Inventory Results screen is displayed. Observe the detailed granule information for the selected granule. | |
| 670 | Tester: Select Close | |
| 680 | Expected Results: The Detailed Inventory Results screen closes and the Inventory result screen is displayed | |
| 690 | Tester: View the geographic coverage of a granule by selecting Coverage Map | |
| 700 | Expected Results: A two-dimensional graphical representation of the geographic coverage of the selected granule(s) is displayed | |
| 710 | Tester: Select some of the plot options on the Coverage Map to manipulate the geographic area | |
| 720 | Expected Results: The Map is adjusted according to user selections | |
| 730 | Tester: Return to the Search Screen. Initialize an inventory search using "SSM/I" as keyword for the search criteria and enter "rectangle" as the geographic information. The SSM/I gritted brightness temperatures is entered to span a 5 year period, 1987-1991 (North of 30 degrees N.) | |

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| | | |
|---|---|---|
| 750 | Expected Results: The search is initialized and information on the dataset is displayed. | |
| 760 | Tester: Select the Coverage Map to view some of the granules geographic coverage. | |
| 770 | Expected Results: A two-dimensional graphical representation of the geographic coverage of the selected granule(s) is displayed | |
| 780 | Tester: Plot a lat/lon grid on the map and select some political boundaries and rivers to overlay on the map | |
| 790 | Expected Results: The Coverage Map is enhanced with an overlay of the specified political boundaries and rivers on the original Map | |
| | **Data Access** | |
| 800 | Tester: Establish a client session to the data server and create a working collection of data. (Using the Release A Search and Order Tool, search for the specified data set). | |
| 810 | Expected Results: The Data Server assigns a session ID and logs(via MSS Logging Services) the initiation of the session. The Data Server logs and queues the search request sent by the user to create a working collection and searches the Metadata Database in accordance with the user's indicated search attributes. Identified granules are returned to the user's working collection. | |
| 820 | Tester: Refines the contents of the working collection to specific granules of high interest and invokes an acquire(via ftp pull) service to obtain the high interest granules. | |
| 830 | DAAC Ingest/Distribution Technician: Track the progress of the request and review any errors recorded by using either the *other screens* option and selecting *Logs & Reports (MSS)* from DSS System Management main menu or can view actual request status's via the Distribution Management Component's *Requests* screen. | |
| 840 | Expected Results: The Data Server logs (via MSS Logging Services) and queues subsequent search requests to identify high interest granules and searches the Metadata Database in accordance with the user's refined search attributes when the request is reached in the request queue. The user's working collection is updated with the results of each subsequent search. Distribution Management logs (via MSS Logging Services) the Acquire Via ftp Pull Request and sends a Data Retrieval Request to Storage Management listing the granules of high interest to be retrieved and placed on the Pull Volume. | |
| 850 | DAAC Ingest/Distribution Technician: Review the progress of the request via either the *other screens* option and selecting *Logs & Reports (MSS)* from DSS System Management main menu or via Storage Management Component's *Logs & Reports (MSS)* submenu available on the *Other Screens* pull down menu. | |

| | | |
|---|---|---|
| 860 | Expected Results: Storage Management logs ( via MSS Logging Services) and queues the Data Retrieval Request. When the request is reached in the request queue, Storage Management requests the appropriate granules be retrieved from the archive via the Archive Management OTS Product. The granules are placed on the Working Storage and transferred to the Pull Volume, the reference count for each file in those granules is incremented and a Data Retrieval Request completed message is logged and sent to Distribution Management. | |
| 870 | DAAC Ingest/Distribution Technician: View Pull Area Utilization data via the Storage Management Component's *Pull Area Utilization* screen. | |
| 880 | Expected Results: Distribution Management extracts the file names and path names associated with the high interest granules. A Retrieval Complete Notification is created which includes file and path names. This notification is sent to the requesting user's client or via email if no client is active. | |
| 890 | Tester: Retrieves the requested data from the DAACs Pull Volume. | |
| 900 | Expected Results: CSS Subsystem detects and logs (via MSS Logging Services) that an authorized user has accessed specific files on the Pull Volume. CSS provides a Pull Volume Access Notification to Storage Management which enumerates the path names and files retrieved by an associated user ID. | |
| 910 | DAAC Ingest/Distribution Technician: Verify request completion via either the *Other Screens* option and selecting *Logs and Reports (MSS)* from DSS System Management main menu, the Storage Management Component's *Logs and Reports (MSS)* submenu available on the *Other Screens* pull down menu, or the Distribution Management Component's *Request Screen*. | |
| 920 | Expected Results: Storage Management receives and logs (via MSS Logging Services) the Pull Volume Access Notification. Storage Management parses the notification and determines which files were retrieved by the user. The reference count for those files is decremented. | |
| **Data Reduction and Analysis Steps:** | | |
| **Signature:** | | **Date:** |

## 12.4.1.2  Data Receipt and Storage

This test is consolidated with A090310.040$L, A090310.050$L, A120540.010$L, and A100110.010$L.

## 12.4.1.3  Science Ancillary Data Access

This test is consolidated with A120540.020$L, A090270.030$L, A100140.020$L, A120540.020$L, A080490.010$L, A100140.010$L, A100140.040$L, A120540.020$L, A090270.010$L, and A090130.020$L.

### 12.4.2.1  Science algorithm Retrieval and Compatibility

This test is consolidated with A120530.020$L, A120640.030$L, and A100230.010$L.

### 12.4.3.1  Metadata Production and Updating

This test is consolidated with A090310.050$L, A090310.050$L, A090240.010$L, A090270.010$L, A090430.010$L, A120220.010$L, A090430.010$L and A120640.030$L.

### 12.4.3.2  Metadata Retrieval

This test is consolidated with A100110.060$L, A100110.070$L, A100110.080$L, A120610.010$L, A100110.110$L, and A120640.030$L.

### 12.4.4  ECS Data Set Interoperability Sequence

This sequence confirms the ECS user's capability to exchange data and information among the ECS DAACs via data and catalog interoperability. Exchange information includes: advertising information (directory-level information about data sets); data holdings of ECS; data search/search results; inventory, guide and browse information; user authentication; and product requests. Only HDF standard data formatted data is used in this sequence.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, DMS, DPS, DSS, INS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e., other ECS sites and data sources) needed for this sequence  (both real and simulated) are listed:

> NOAA ADC

> GSFC V0 DAAC

> Simulated Science user

**Operator Position(s)**: The are no operator positions needed for this sequence.

**Operational Scenario(s)**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release-A document (605/OP1), that were used to develop tests in this sequence of tests are listed:

> Resource Planning Scenario (Section 3.7.1)

> TRMM Ancillary Data Ingest Scenario (Section 3.9.3)

> Version 0 (V0) Data Ingest Scenario (Section 3.9.5)

> Data Insertion Scenario (nominal) (Section 3.10.2)

> Network Data Distribution (Pull) Scenario (Nominal) (Section 3.11.1)

**Test Dependencies**: There are no test dependencies needed for this sequence of tests.

## 12.4.4.1 ECS DAAC and V0 DAAC Interoperability

| TEST Procedure No.:<br>A120540.010$L | Date Executed: | Test Conductor: |
|---|---|---|

| Title: | ECS DAAC and V0 DAAC Interoperability |
|---|---|

| Objective: | This procedure tests the capability of ECS DAAC to V0 DAAC interface to support advertising information, user authentication, data search (inventory, guide, and browse), and data request. |
|---|---|

| Requirements | Acceptance Criteria |
|---|---|
| DADS2450#A | This requirement is verified through demonstration.<br><br>Each DADS shall distribute data to elements of EOSDIS and approved non-EOSDIS data destinations.<br><br>Note: This procedure verifies the distribution of data to elements of EOSDIS.<br><br>This requirement is verified when the Data Distribution CI distributes any data, or appropriate subset, listed in the Inventory. |
| EOSD1695#A | This requirement is verified through test.<br><br>The ECS shall provide 2-way interoperability with the V0 system.<br><br>This requirement is verified when the ECS and the ESDIS V0 IMS systems enable the user of each system to search, browse, and order data products made available by the other system. |
| IMS-0600#A | This requirement is verified through demonstration.<br><br>The IMS shall provide the capability to search a directory of information that describes whole EOSDIS, non-EOSDIS, and ADC earth science data sets.<br><br>This requirement is verified when the tester is able to search a directory of information via the Workbench CI. |
| IMS-0625#A | This requirement is verified through demonstration.<br><br>The IMS shall provide bi-directional interoperability between ECS and V0 for access to the inventory metadata, guide information, and browse products via level III catalog interoperability as specified in ICDs.<br><br>This requirement is verified when the GateWay CI receives Inventory Search Requests, Browse Requests, and Product Requests from, and sends Inventory Search Results to the Version 0 IMS using Version 0 system protocols. |
| IMS-0915#A | This requirement is verified through test.<br><br>The IMS shall provide an interface to the V0 system for ordering data products to be delivered directly to the ECS user.<br><br>This requirement is verified when the GSFC ECS DAAC sends the product directly to the authorized user either on physical media or on-line. The ECS user requests a product from the V0 archives. The request then passes from ECS to the ESDIS V0 Server via V0 protocols. |
| V0-0010#A | This requirement is verified through test.<br><br>The ECS system shall provide 2-way interoperability with ESDIS V0.<br><br>This requirement is verified when the ECS and V0 Systems interact with information servers of the other system by exchanging standard search protocols. The ECS uses current V0 standards and protocols for other interfaces system. |

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| V0-0020#A | This requirement is verified through test. |
| --- | --- |
| | The ECS system shall be able to receive ECS User Authentication Requests from the ESDIS V0 IMS. |
| | This requirement is verified when the V0 IMS user sends and ECS receives ECS User Authentication Requests. |
| V0-0030#A | This requirement is verified through test. |
| | The ECS shall be able to send the ESDIS V0 IMS ECS User Authentication Information. |
| | This requirement is verified when the V0 IMS receives ECS User Authentication Information. |
| V0-0040#A | This requirement is verified through test. |
| | The ECS shall be able to send the ESDIS V0 server V0 User Authentication Requests. |
| | This requirement is verified when the ECS user sends and V0 server receives V0 User Authentication Requests. |
| V0-0050#A | This requirement is verified through test. |
| | The ECS shall be able to receive V0 User Authentication Information from the ESDIS V0 IMS server. |
| | This requirement is verified when the ECS receives V0 User Authentication Information from the ESDIS V0 server. |
| V0-0060#A | This requirement is verified through test. |
| | The ECS system shall be able to send V0 server Inventory Requests via V0 protocols. |
| | This requirement is verified when the V0 server receives Inventory Requests from ECS. |
| V0-0070#A | This requirement is verified through test. |
| | The ECS system shall be able to receive Inventory Search Results from V0 server via V0 protocols. |
| | This requirement is verified when the ECS receive Inventory Search Results from the V0 server. |
| V0-0080#A | This requirement is verified through test. |
| | The ECS shall be able to send Guide Search Request to the V0 server via V0 protocols. |
| | This requirement is verified when the V0 IMS receives Guide Search Request via V0 protocols. |
| V0-0090#A | This requirement is verified through test. |
| | The ECS shall be able to receive the results of the Guide Search Request from the V0 server via V0 protocols. |
| | This requirement is verified when the ECS receives Guide Search Results from the V0 server via V0 protocols. |
| V0-0100#A | This requirement is verified through test. |
| | The ECS shall be able to send the V0 server Browse Request via V0 protocols. |
| | This requirement is verified when the V0 server receives Browse Requests from ECS via V0 protocols. |

| | |
|---|---|
| V0-0110#A | This requirement is verified through test. |
| | The ECS shall be able to receive the results of the Browse Request from the V0 server via V0 protocol. |
| | This requirement is verified when the ECS receives Browse Results from the V0 server via V0 protocols. |
| V0-0120#A | This requirement is verified through test. |
| | The ECS shall be able to send Product Requests to the V0 server via V0 protocols. |
| | This requirement is verified when the V0 server receives Product Requests from ECS via V0 protocols. |
| V0-0150#A | This requirement is verified through test. |
| | The ECS shall be able to receive Inventory Search Request from the V0 IMS via V0 protocols. |
| | This requirement is verified when the ECS receives Inventory Search Request from the V0 IMS via V0 protocols. |
| V0-0160#A | This requirement is verified through test. |
| | The ECS shall be able to send the results of the Inventory Search Request to the V0 IMS via V0 protocol. |
| | This requirement is verified when the ECS sends the Inventory Search Results to the V0 IMS without incurring transmission errors. |
| V0-0170#A | This requirement is verified through test. |
| | The ECS shall be able to receive Guide Search Request from the V0 IMS via V0 protocol. |
| | This requirement is verified when the ECS receive Guide Search Request from the V0 IMS via V0 protocol. |
| V0-0180#A | This requirement is verified through test. |
| | The ECS shall be able to send the results of the Guide Search Request to the V0 IMS via V0 protocol. |
| | This requirement is verified when the ECS sends the Guide Search Results to the V0 IMS without incurring transmission errors. |
| V0-0190#A | This requirement is verified through test. |
| | The ECS shall be able to receive Browse Request from the V0 IMS via V0 protocol. |
| | This requirement is verified when the ECS receives a Browse Request from the V0 IMS. |
| V0-0200#A | This requirement is verified through test. |
| | The ECS shall be able to send the results of the Browse Request to the V0 IMS via V0 protocol. |
| | This requirement is verified when the ECS sends Browse Results to the V0 IMS without incurring transmission errors. |
| V0-0230#A | This requirement is verified through test. |
| | The ECS shall be able to receive Product Requests from V0 IMS via V0 protocols. |
| | This requirement is verified when the ECS receives Product Requests V0 IMS. |

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| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| | NOTE: This procedure is in two parts.  The first part tests ECS capability to establish communication with the V0 server and to send requests to and receive results from the V0 server.  The second part tests ECS capability to receive requests from and send results to the V0 server after the V0 server has established communication with ECS. | |
| | **PART I** | |
| 10 | Tester: Log into the ECS desktop; bring up ECS Release A Search and Order Tool. | |
| 20 | Expected Result: The "Welcome" screen must appear after all the necessary information entered. | |
| 30 | Tester: Clicks the Search Screen button (from the previous screen) and enter the search criteria. | |
| 40 | Expected Result: The System  must display a window with various selection. | |
| 50 | Tester: Selects Search Type for the Search Type name as Directory. | |
| | **Directory Search Request/Results** | |
| | The Directory search provides information on the location of metadata or dataset catalogues. | |
| 60 | Tester: Submits a directory query for V0 DAAC. | |
| 70 | Expected Result: The search is executed and the system must respond with a Communications Results Status window. | |
| 80 | Tester: Clicks on the "Data" button to view the data at V0 DAAC. | |
| 100 | Expected Result: The system displays data at the V0 DAAC. | |
| | **Browse Request/Results** | |
| | The Browse Request allows the user to retrieve/view low resolution images. | |
| 110 | Tester: Enters an Inventory Search for browse products at the V0 DAAC. | |
| 120 | Expected Result: The system displays the message, "Browse Available", which indicates a browse product exists for the given granule. | |
| | **NOTE: Execute Steps 130 through 160 to view browse data via FTP Browse.  Execute Steps 170 through 200 to view browse data via Integrated Browse.** | |
| | **FTP Browse Steps** | |
| 130 | Tester: Uses a FTP Browse method to see a browse product for any granule. | |

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| | | |
|---|---|---|
| 140 | Expected Result: The V0 IMS Server transmits the ftp Browse Results to the ECS Release A Search and Order Tool and copies the browse products onto the DAAC ftp site. The Tester is notified, via email, that the browse product is ready to ftp. The notification provides the ftp account, ip address of the ftp account, and the directory and file name of the browse products. | |
| 150 | Tester: Copies the browse products to local system by using the ftp get (single file transfer) or mget (multiple file transfer) command. Displays the browse product(s). | |
| 160 | Expected Result: The system allows the user to display the browse image product on his/her workstation. | |
| | **Integrated Browse Steps** | |
| 170 | Tester: Uses the Integrated Browse method to see a browse product for any granule. | |
| 180 | Expected Result: System : The granule(s) are transferred to the machine. Once all images are physically on the IMS machine, the status screen bolds the Image button. | |
| 190 | Tester: View images from the Integrated Browse Product Display Screen. | |
| 200 | Expected Results: Browse products images are displayed. | |
| | **Inventory Search Request/Results** | |
| | The Inventory Search Request allows the user to locate specific granules within a dataset. | |
| 210 | Tester: Selects the Inventory "Search Type" from the Inventory Search screen and enters an Inventory Search on the V0 DAAC or (Access Inventory Information from the directory results). | |
| 220 | Expected Result: The Search and Order Tool retrieves granule information associated with all selected data sets. The system performs an automatic inventory search. After the execution of the search, the system responds with a Communications Results Status window which informs the searching and networking activity. | |
| 230 | Tester: Clicks the "Data" button to view the data. | |
| 240 | Expected Result: The completed search generates Inventory Results. The Inventory Results include dataset level and granule information. | |
| | **Guide Search Request/Results** | |
| | The Guide search provides detailed descriptions about data sets, platforms and sensors. | |
| 250 | Tester: Selects the "Guide" Search Type on the screen. | |
| 260 | Expected Result: The system displays the Guide Display Screen and allows Guide Search in one of the following three methods: Guide Type, Guide Info, and item. | |
| 270 | Tester: Perform a Free Text search by selecting the "Guide" Search Type and enters the word "DMSP". | |
| 280 | Expected Result: The system returns a list of all guide documents with the word DMSP in them. | |
| 290 | Tester: Clicks on the document name to view that document. | |
| 300 | Expected Result: The system brings up a guide document. | |

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| | | |
|---|---|---|
| 310 | Tester: Searches for word(s) in the current document by clicking the "Find" from the screen. | |
| 320 | Expected Result: The system finds the first occurrence of the word in the guide document. | |
| | **Product Request/Results** | |
| | The Product Request/Results provides placement of orders for full data sets. | |
| 330 | Tester: Clicks on the Order button from the GoTo Screen Functions window and Selects Product Request from the Go To menu. | |
| 340 | Expected Result: The system displays the orderable data products and establishes a dialog through the interface with GSFC DAAC to make a product request. | |
| 350 | Tester: Clicks on the granule. | |
| 360 | Expected Result: The system displays the Package Selection Options screen. | |
| 370 | Tester: Selects item, processing option and media option (TEST) from the previous screen. | |
| 380 | Expected Result: The screen must return the Product Request Screen. | |
| 390 | Tester: Selects the submit Request button from the Screen Functions menu. | |
| 400 | Expected Result: The Product Request Search screen appears. The system displays a Communications Status screen and makes the Contact Information available. | |
| 410 | Tester: Clicks on the Contact Information to view the information. | |
| 415 | Expected Result: Contact Information screen is displayed. | |
| 420 | Tester: Go to the GoTo menu and select Exit IMS. | |
| 430 | Expected Result: The system must prompt for confirmation. | |
| 440 | Tester: Clicks on the OK button | |
| 450 | Expected Result: The session with the V0 DAAC ends. | |
| | **PART II** | |
| 460 | Tester: Repeat Step 10 through 450 from the V0 Client. | |
| **Data Reduction and Analysis Steps:** | | |
| **Signature:** | | **Date:** |

## 12.4.4.2 NOAA Data Centers/ECS DAAC Interoperability

| TEST Procedure No.:<br>A120540.020$L | Date Executed: | Test Conductor: |
|---|---|---|

| **Title:** | NOAA Data Centers/ECS DAAC Interoperability |
|---|---|
| **Objective:** | This procedure tests the capability of ECS DAAC to obtain information from the NOAA Data Centers. |

| Requirements | Acceptance Criteria |
|---|---|
| EOSD1710#A | This requirement is verified through demonstration.<br><br>ECS elements shall exchange with ADCs/ODCs, such as NOAA and other data processing and archiving facilities, information including the following:<br><br>a. Directories<br>b. Product Orders<br>c. Order Status<br>d. Science Data<br>e. Management Data<br><br>This requirement is verified upon the receipt of Directories, Product Orders, Order Status, Science Data, and Management Data information from the NOAA ADC. |
| IMS-0380#A | This requirement is verified through demonstration.<br><br>The IMS shall provide the capability to support one-way exchange of directory data with the NOAA ADCs.<br><br>This requirement is verified every time the tester select a Data Center from the IMS Advertising Menu. |
| IMS-0600#A | This requirement is verified through demonstration.<br><br>The IMS shall provide the capability to search a directory of information that describes ADC's earth science data sets.<br><br>This requirement is verified every time the tester select a Data Center from the IMS Advertising Menu and the directory-level information for the selected NOAA Data Center is displayed. |
| IMS-0620#A | This requirement is verified through demonstration.<br><br>The IMS shall provide access to inventories of selected ODCs and ADCs via level II and level III catalog interoperability as specified in ICDs.<br><br>This requirement is verified when the user is able to obtain data products from the NOAA SAA, via the WKBCH CI. |
| IMS-0780#A | This requirement is verified through test.<br><br>The IMS shall accept and validate from the ECS users, IPs, ADCs, and ODCs requests for ECS archival data products.<br><br>This requirement is verified when the WKBCH CI verifies user's access privilege to data and confirms or rejects the user's request.<br><br>Note: There are no IPs or ODCs in Release A. |

| IMS-0870#A | This requirement is verified through test. |
| | The IMS shall provide access in accordance with MOUs to ADC and ODC data that |
| | b. Is stored by ADC and ODC archives and requested by EOSDIS users |
| | c. Is required as ancillary data for production processing. |
| | This requirement is verified when ECS is able to translate V0 protocols into ECS protocols. |
| NOAA0800#A | This requirement is verified through demonstration. |
| | The NOAA Data Centers must have the capability to send and the ECS must have the capability to receive advertising information. |
| | This requirement is verified when the user is able to view the NOAA advertising information while using the Release A Search and Order Tool. |
| SDPS0100#A | This requirement is verified through test. |
| | The SDPS shall be responsible for delivery of EOS data and data products to the ADCs, and the other science users via EOSDIS networks and on a variety of physical media. |
| | This requirement is verified when the user is able to order a data product from ECS through a NOAA interface. |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 100 | Tester: Activate the Advertising Services from the Desktop. | |
| 20 | Expected Results: The Advertising Service Menu is displayed. | |
| 30 | Tester:  Select the National Oceanographic Data Center (NODC) from the Advertising Service Menu. | |
| 40 | Expected Results: The directory-level information for the NODC is displayed. | |
| 50 | Tester:  Select the National Geophysical Data Center (NGDC) from the Advertising Service Menu. | |
| 60 | Expected Results: The directory-level information for the NGDC is displayed. | |
| 70 | Tester:  Select National Climatic Data Center (NCDC) from the Advertising Service Menu. | |
| 80 | Expected Results: The directory-level information for the NCDC is displayed. | |
| 90 | Tester: FTP a data file from the selected NOAA Data Center. | |
| 100 | Expected Results: The data file is received at the ECS DAAC from the selected NOAA Data Center. | |
| **Data Reduction and Analysis Steps:** | | |
| | | |
| **Signature:** | | **Date:** |

## 12.5 System  Performance  Scenario

The system performance scenario demonstrates overall ECS performance capabilities as well as the ability of ECS to expand and evolve without changes to design. The focus is on performance measures which are distributed among several elements and cannot be confirmed by single element testing. Other performance measures are the ability to handling triple the average daily rate of science data, handling transactions within prescribed response time envelops, confirming archiving capacity of DAACs, and archiving triple the average daily rate of science data and distributing data within the required times.

The performance requirements, as specified in ECS documentation, are verified under specified operational conditions. The emphasis is on testing in a simulated or near real operational environment, typifying moderately loaded and busy system conditions. Response time, archiving capacity and expansion capability performance measures are emphasized.

The scenario verifies the ECS capability to generate and gather statistics and measure performance pertaining to DAAC operations and end-to-end message traffic. Measurement and analysis of the message traffic, resource utilization and operational statistics are used to confirm ECS system performance.

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## 12.5.1  Data Ingest, Data Server and Data Distribution Performance Sequence

This sequence verifies the capability of the ECS to ingest, archive, retrieve, and process the full range of data products appropriate to this DAAC including L0 to L3 science data and ancillary data. The tests will verify system performance at both nominal and maximum data handling loads with the system configured and operating in a normal in "day-in-the-life" operational mode.

The testing of data processing is performed using simulated CERES PGEs. These simulated PGEs will be based on the approved technical baseline. Performance specifications extracted from the performance requirements are listed in the following tables:

### Table 12-1.  Ingest Products

| PRODUCT | FILES/DAY | AVG.  SIZE  (MB) |
|---|---|---|
| CERES Level 0 data, | 1 | |
| CERES Level 0 expedited data | 3 | |
| TRMM Predictive /Definitive Orbit Data | 1 | .89 |
| TRMM Platform Ephemeris | 1 | 162 |
| SAGE II Aerosol | 1/5 | 1.4 |
| SAGE II Ozone | 1 | 2 |
| ISCCP Radiances | | 340 |
| NESDIS Snow/Ice Cover, 10.5 MB, four files | 4 | 42.1 |
| NESDIS Layer/Level Ozone, one file, 1MB | 1 | 1MB |

### Table 12-2.  LaRC DAAC Products

| PRODUCT | FILES/DAY | AVG.  SIZE  (MB) |
|---|---|---|
| CERES BDS | 1 | 627 |
| CERES CRH | 24 | 28 |
| CERES IES | 24 | 33.5 |
| CERES SSF | 24 | 324 |
| CERES SFC | 1/30 | 21.7 |
| CERES ES8 | 1 | 167 |
| CERES ES9 | 1/30 | 507 |
| CERES ES4 | 1/30 | 16.9 |
| CERES ES4G | 1/30 | 18.2 |
| CERES CRS | 24 | 439 |
| CERES MOA | 24 | 30 |
| CERES FSW | 24 | 43.13 |
| CERES SYN | 8 | 66 |
| CERES AVG | 1/30 | 729 |
| CERES ZAVG | 1/30 | 4 |
| CERES SRBAVG | 1/30 | 1129 |
| CERES EEDB | 1/30 | 101.7 |
| CERES CRH DB | TBD | TBD |

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, DMS, DSS, INS, ISS, & PLS.  Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e., other ECS sites and data sources) needed for a sequence (both real and simulated) are listed:

SDPF

EDOS - Simulated

LaRC V0 DAAC

GSFC ECS DAAC

SMC

CERES SCF

**Operator Positions**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607-CD-001-002) needed to support a sequence are listed:

DAAC Production Planner

DAAC Resource Manager

DAAC Archive Manager

DAAC Ingest-Distribution Technician

**Operational Scenario**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release-A document (605-CD-001-003), that were used to develop tests in this sequence of tests are listed:

Resource Planning Scenario (Section 3.7.1)

TRMM Level 0 Data Ingest Scenario (Section 3.9.1)

TRMM Ancillary Data Ingest Scenario (Section 3.9.3)

Data Insertion Scenario (Nominal) (Section 3.10.2)

Routine Production Planning Scenario (Section 3.12.1)

Normal Production Processing Scenario (Section 3.13.1)

**Test Dependencies**: The following table identifies the test procedure(s) for this sequence of tests that should be run prior to or concurrently with this test procedure. This sequence will be run concurrent with the analogous end-to-end sequence at the other DAACs

| Test Procedure No. | Site/Procedure No. | Comments |
|---|---|---|
| A120610.010$L | A120620.010$L<br>A120620.020$L<br>A120610.010$G | Concurrent |
| A120610.020$L | A120620.010$L<br>A120620.020$L<br>A120610.020$G | Concurrent |

### 12.5.1.1  High Data Rate Ingest, Archiving and Retrieval

| TEST Procedure No.:<br>A120610.010$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | High Data Rate Ingest, Archiving and Retrieval | |
| **Objective** | This procedure tests the capabilities of the ECS LaRC DAAC to meet the daily nominal performance requirements for operations and data processing in a normal operational configuration.  The performance requirements for processing speed and capacity are derived from the SDPS Requirements baseline.  Tables 12-1 and 12-2 (to be derived from the Technical Baseline)  summarizes these performance requirements.  This procedure simulates a normal day's operations for the LaRC DAAC. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS1235#A | This requirement is verified through test.<br><br>Each DADS shall temporarily store expedited data received for 48 hours or until production data are available (whichever comes first).<br><br>At Release A expedited data will be stored. The mechanism to automatically delete it after 48 hours or when production on data are available will not be available until Release B. |
| DADS1640#A | This requirement is verified through test.<br>The DADS shall support the  number of files derivable from Appendix C, with the ability to expand to match growth.<br><br>The system must be able to ingest, process, and archive the number of files specified  as the normal processing load (see tables 12-1 and 12-2)<br><br>The ability to handle growth is not verified in this procedure.  Also weekly and monthly products are not handled in this procedure. |

| | |
|---|---|
| DADS1805#A | This requirement is verified through test. |
| | The DADS shall provide an inventory system capable, at a minimum, of the following:<br>a. Accepting the number of new inventory entries, one per granule, for the number of granules per day as specified in Appendix C<br>b. Uniquely identifying each data granule<br>c. Tracking the physical location of each data granule. |
| | Number of granules for Release A archives are derived from the capability to accommodate the Release A supported missions until the operational turnover of Release B (Through 3 quarter of 98). The number of granules at LaRC archive is sized to support the CERES (TRMM) data (along with required ancillary) and V0 migration data. Total accumulated number of granules for Release A, derived from the August, 1995 Technical Baseline (Release A procurement baseline), is 70K @ LaRC. The number of V0 migration granule was derived by assuming an average size of 50 MB per granule. For Release A, the peak number of granules archived per day @ LaRC is 172. |
| | An inventory log must be created for all products ingested, produced, and archived during the execution of the procedure. The log must uniquely identify each granule and track the physical location in the archive. The log must be accessible through the normal operational interface. The number of granuals to be ingested, produced, and archived at this site is specified in Tables 12-1 and 12-2. |
| DADS2780#A | This requirement is verified through test. |
| | Each DADS shall be capable of ingesting data at the maximum output bandwidth of the EDOS. |
| | The Ingest CI must be able to accept data from the EDOS simulator at the maximum output rate 22Mbps. The Ingest CI must be able to temporarily store TBR GB of data. The size of individual transfers is TBR. The EDOS data ingest must proceed without error. |
| DADS2900#A | This requirement is verified through analysis. |
| | Each DADS shall provide archival capacity for current volume requirements plus one year. Volume requirements are specified in Appendix C. |
| | Release A archives are sized with the capacity to accommodate the Release A supported missions until the operational turnover of Release B (Through 3 quarter of 98). The LaRC archive is sized to support the CERES (TRMM) data (along with required ancillary) and V0 migration data. Total accumulated Release A archive capacity, derived from the August, 1995 Technical Baseline (Release A procurement baseline), in TBytes is 5.6 @ LaRC. |
| | All components of the system must be able to handle the I/O requirements, archival capacity, and temporary storage capacity specified in the F&PRS, Appendix C. Analysis of the capacity consumption for the day and the sizing of the DPRHW CI archive capacity must indicate the capability to store 365 days worth of science data (including reprocessed data) and science data management overhead. |
| EDOS-B.2.1#A | This requirement is verified through test |
| | The DIF-LaRC DAAC interface shall provide the capability to support the transfer of Operations Management data to the LaRC DAAC at a rate of up to 50 Kbps. |
| | Interface transfer rates are confirmed during the ingest of data from EDOS simulator. |

| | |
|---|---|
| EDOS-B.2.2#A | This requirement is verified through test<br><br>The DIF shall provide the capability to initiate transfer of a PDS Delivery Record to the LaRC DAAC within 120 seconds of delivery of the PDS.<br><br>The DIF response time is monitored during EDOS simulator data ingest activity. |
| EDOS-B.5.2#A | This requirement is verified through test.<br><br>The DPF-LARC DAAC interface shall provide the capability to support the transfer of PDSs to the LaRC DAAC at a rate of up to 22 Mbps.<br><br>The Ingest CI must be able to accept data from the EDOS simulator at the maximum output rate 22Mbps. |
| EOSD0020#A | This requirement is verified through test.<br><br>ECS shall use and support the EDOS/Ecom interface to obtain the data capture, data archival, and data distribution services needed to achieve full end-to-end ECS functionality.<br><br>The ECS must interact with a simulated EDOS interface. The interaction must follow the protocols for a polling ingest. All communications messages must be processed without error and recorded on the system log.<br><br>No data archival or distribution of this data is in Release A. |
| EOSD1010#A | This requirement is verified through test.<br><br>ECS shall support daily data volume, processing load, storage volume, instrument support, and data traffic as derivable from and specified in Appendix C and D.<br><br>Refer to the Clarification text of the following requirements for Release A capacity requirements: Processing - PGS1300#A and PGS1310#A;<br><br>Archiving Capacity - DADS1640#A, DADS1805#A, DADS2778#A, and DADS2900#A; and Archive Throughput - DADS2778#A and DADS3100#A.<br><br>The system must be able to ingest, process, and archive the number of files specified as the normal processing load as well as servicing the user requests. Concurrent handling of all traffic and support requirement is simulated and measured for response times and capacity consumption.<br><br>Specific performance targets for this site are detailed in Tables 12-1 and 12-2. |
| EOSD1030#A | This requirement is verified through test.<br><br>ECS shall have the capacity to accept a daily average of (2) per cent of the daily data throughput as expedited data for use in mission functions of calibration and anomalies.<br><br>The ECS must accept and archive the expedited CERES Level 0 data files. |

| EOSD1050#A | This requirement is verified through analysis.

ECS shall generate and make available to the users Level 1 Standard Products within 24 hours after the availability to ECS of all necessary input data sets.

The system performance observed and metrics gathered during the simulation of data production is used to validate dynamic models of product generation. |
|:---:|:---|
| EOSD1060#A | This requirement is verified through analysis.

ECS shall generate and make available to the users Level 2 Standard Products within 24 hours after the availability to ECS of all necessary Level 1 and other input data sets.

The system performance observed and metrics gathered during the simulation of data production is used to validate dynamic models of product generation. |
| EOSD1070#A | This requirement is verified through analysis.

ECS shall generate and make available to the users Level 3 Standard Products within 24 hours after the availability to ECS of all necessary Level 2 and other input data sets.

The system performance observed and metrics gathered during the simulation of data production is used to validate dynamic models of product generation. |
| EOSD1080#A | This requirement is verified through analysis.

ECS shall generate and make available to the users Level 4 Standard Products within one week after the availability to ECS of all necessary Level 3 and other input data sets.

The system performance observed and metrics gathered during the simulation of data production is used to validate dynamic models of product generation. |
| ESN-1206#A | This requirement is verified through test.

The ESN capacity and performance shall be consistent with the specified capacity and performance requirements of the ECS functions.

The network must be able to support the data rates and capacities required for the ingest of all data products and user support. Specific performance targets for this site are detailed in Table 12-1. |

| | |
|---|---|
| TRMM1130#A | This requirement is verified through demonstration.<br><br>The ECS systems at the LaRC DAAC shall receive CERES scheduled quick-look from SDPF 3 times per day plus occasional special quick-look data sets.<br><br>The ECS must accept and archive the expedited CERES Level 0 data files. |
| TRMM8100#A | This requirement is verified through demonstration.<br><br>ECS shall process CERES Level 0 and quick-look data sets received from SDPF for early interface testing.<br><br>The ECS must accept,  archive, and process the expedited CERES Level 0 data files. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| CERES0_001 | TBD | TBD | CERES Level 0 expedited data, 1 file and  SFDU header, start time TBD | 1 |
| CERES0_002 | TBD | TBD | CERES Level 0 expedited data, 1 file and  SFDU header, start time TBD | 1 |
| CERES0_002 | TBD | TBD | CERES Level 0 expedited data, 1 file and  SFDU header, start time TBD | 1 |
| CERES0_004 | TBD | TBD | One days worth of CERES Level 0 data, 1 file and  SFDU header, start time TBD | 1 |
| TRMMPO_OO1 | | | TRMM Predictive Orbit Data | |
| TRMMDO_001 | | | TRMM Definitive Orbit Data | |
| TRMMEPHEM_001 | TBD | TBD | One days worth of TRMM Platform Ephemeris, 1 file in binary EPHEM format | 1 |
| SAGEII_001 | | | SAGE II Aerosol | |
| SAGEII_002 | | | SAGE II Ozone | |
| ISCCP_001 | | | ISCCP Radiances | |
| VIRS1B_001 | TBD | TBD | One days worth of VIRS 1B Radiance data, 16 files HDF/EOS format, start time TBD | |

| | | | | |
|---|---|---|---|---|
| TMI2A_001 | TBD | TBD | One days worth of TMI 2A Profiling data, 16 files HDF/EOS format, start time TBD | 1 |
| NESDISSIC_001 | TBD | TBD | NESDIS Snow/Ice Cover, 10.5 MB, four files | |
| NESDISLLO_001 | TBD | TBD | NESDIS Layer/Level Ozone, one file, 1MB | |
| AVHRRAPD_001 | TBD | TBD | AVHRR Aesrosol Data | |
| NMC_GAP_001 | TBD | TBD | NMC Attitude, Temperature, humidity data | |
| TOMSOPD_001 | TBD | TBD | TOMS Ozone Profile Data | |
| SSMIMWH_001 | TBD | TBD | SSM I Microwave humidity data | |
| MOPITT0_001 | TBD | TBD | Mopitt level 0 data | |
| ProductionPlan | | | CERES daily data production plan. | |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | Tester: Query data server for existence of any of the files that are to be ingested during this procedure.  Files should not exist. | |
| 20 | Computer Operator: Monitor resource utilization for all DMGHW, Data Server HWCIs,  INCLHW, and all network devices.  Configure MSS tools to plot CPU, cache, and  disk utilization and network throughput capacity utilization. | |
| 30 | Expected Results: System is configured for monitoring. | |
| 40 | Production Planner: Invoke the resource planning system. | |
| 30 | Expected Results: System - Planning Menu is displayed. | |
| 50 | Production Planner: Select "Create New Plan". | |
| 60 | Expected Results: Plan entry screen is displayed. | |
| 70 | Production Planner: For each ingest event for this procedure enter: ground event, description, start time, duration. | |
| 80 | Production Planner: Send the completed requests to the planning subsystem. | |
| 90 | Expected Results: System - Acknowledges receipt of the requests.  Processes requests and automatically allocates resources, resource plan is sent to Production Planner. | |
| 100 | Expected Results: System - Processes requests and automatically allocates resources, resource plan is sent to Production Planner. | |
| 110 | Production Planner: Review plan and EMail a copy to the Archive Manager. | |
| 120 | Expected Results: The Archive Manager receives the EMail. | |
| 130 | Archive Manager: Allocate resources according to plan, send notification to the Resource Manager. | |
| 140 | Expected Results: Resource Manager receives plan. | |
| 150 | Resource Manager: Review configuration and resolve discrepancies. | |
| 160 | Expected Results: System is configured for planned activity. | |
| 170 | Ingest/Distribution Tech: Monitor ingest activity. | |
| 180 | **Start Pull Background Load** | |
| 190 | Tester: Start concurrent execution of test procedure **A120620.010$L.** | |
| 200 | Tester: Start concurrent execution of test procedure **A120620.020$L.** | |

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| | **Start Concurrent CERES Data Processing** | |
| | The following steps are performed concurrently with the ingest processing.  Test personnel performing the ingest functions should not wait for the completion CERES data production steps.  **Note: The CERES data processing steps make one pass through the production of "daily" data products.  The execution of data processing is under the automated control of Autosys.  Whenever the planning system starts a production job or PGE, the steps relating to that particular PGE are executed.  Each series of steps for a particular PGE are executed a number of times during this procedure. (Most of the data products created have a time coverage of one hour.  During a day, those products are created 24 times)** | |
| 210 | Production Planner:   Notes the jobs scheduled for processing today in the month long current active plan.  The Production Planner, using the planning workbench software, initiates the "downloading" of the daily schedule of jobs to the Autosys scheduling tool.  (Details on the execution of this test are under development.) | |
| 220 | Expected Results: System converts DPRs into Autosys commands using the Autosys JIL interface.  Autosys displays each DPR in a job box which contains all the required jobs for a PGE.  Autosys automatically places the jobs in a "held" state while waiting on their data dependencies. | |
| 230 | Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software as subscription requests are fulfilled. | |
| 240 | Expected Results: The subscription manager software releases the appropriate DPRs from their "held" state as the subscription notifications arrive.  This process is automatic and requires no operator intervention. | |
| 250 | Production Monitor: Uses the Autosys Screen to observe and determine processing status of all DPRs throughout the day. | |
| | **Configure Polling for V0 and NOAA Ancillary Data** | |
| 260 | Ingest/Distribution Tech: Setup Ingest to "Poll with Delivery Record" the LaRC V0 server every 15 minutes. | |
| 270 | Expected Results: Ingest will poll the V0 server every 15 minutes.  If a DR has been staged on the V0, Sage II ancillary data is transferred and steps 6000 through 6120 of this procedure are executed for the data staged. | |
| 280 | Ingest/Distribution Tech: Setup Ingest to "Poll with Delivery Record" the NOAA ADC every 20 minutes. | |
| 290 | Expected Results: Ingest will poll the NOAA ADC every 20 minutes.  If a DR has been staged on the server, NESDIS ancillary data is transferred and steps 6000 through 6120 of this procedure are executed for the data staged. | |
| | | |
| | **INGEST  ACTIVITY** | |
| | **Start First SDPF CERES Expedited Data Transfer** | |
| 300 | Tester: Coordinate with SDPF for transfer of data set CERES0_001 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |

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| 310 | Expected Results: CERES Expedited data is ingested and archived. | |
| | **SCF Subscription Activated** | |
| 311 | Expected Results: System Data Server - Based on CERES SCF subscription, stages data and metadata, logs status to system log, sends a DAN to SCF. | |
| 312 | CERES SCF: Sends a DAA to ECS, Transfers data file, sends a DDN to ECS. | |
| 313 | Expected Results: System Data Server - Receives and logs DAA; Receives and logs DDN; Deletes data files from staging | |
| 314 | Ingest/Distribution Tech: Monitor transfer processing; verify successful transfer. | |
| 315 | Tester: Perform a compare of the data file before it was sent from the remote and after it was received by THE SCF. | |
| 316 | Expected Results: The files compared should be identical. | |
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| | **Stage NESDIS Ancillary Data** | |
| 320 | Tester: Stage DR for NESDISSIC_OO1 data file transfer on NOAA ADC. (Assumes NOAA Participation in Test) | |
| 330 | Expected Results: Test steps 6000 through 6120 will be executed when Ingest polling detects the DR. | |
| | **Start SDPF CERES Level 0 Data Transfer** | |
| 340 | Tester: Coordinate with SDPF for transfer of data set CERES0_004 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 350 | Expected Results: CERES Level 0 data is ingested and archived. | |
| 360 | Tester: Coordinate with SDPF for transfer of TRMM Ephemeris data and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 370 | Expected Results: TRMM Ephemeris data is ingested and archived. The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. DPR for CERES Level 0 processing PGE is initiated. | |
| | **Ingest Ancillary Data From GSFC DAAC** | |
| 380 | Tester: Coordinate with GSFC DAAC Test Conductor the ingest of VIRS, TMI, MODIS, AVHRR (APD), NCEP (GAP), SSM/I (MWH), and TOMS (OPD) data. These products will be sent to LaRC upon archival at GSFC based on LaRC subscriptions for the products. | |
| 390 | Expected Results: Timetable for ingest of ancillary products from GSFC DAAC is established. | |
| 400 | GSFC DAAC: Notifies LaRC DAAC of availability of data based on LaRC subscription. | |
| 410 | Expected Results: Details of inter-DAAC transfer protocol are being investigated. Will be inserted when available. | |
| | **Start Second SDPF CERES Expedited Data Transfer** | |

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| 450 | Tester: Coordinate with SDPF for transfer of data set CERES0_002 and execute SDPF data transfer procedures, steps 5000 through 5190 . |
| 460 | Expected Results: CERES Expedited data is ingested and archived. |
| | **Stage NESDIS Ancillary Data** |
| 470 | Tester: Stage DR for NESDISLLO_001 data file transfer on NOAA ADC server. |
| 480 | Expected Results: Test steps 6000 through 6120 will be executed when Ingest polling detects the DR. |
| | **Ingest ISCCP Data From V0 DAAC** |
| 490 | Tester: Stage DR for ISCCP_OO1 data file transfer on LARC V0 DAAC. |
| 500 | Expected Results: Test steps 6000 through 6120 will be executed when Ingest polling detects the DR. |
| | **Start Third SDPF CERES Expedited Data Transfer** |
| 510 | Tester: Coordinate with SDPF for transfer of data set CERES0_003 and execute SDPF data transfer procedures, steps 5000 through 5190 . |
| 520 | Expected Results: CERES Expedited data is ingested and archived. |
| | **EDOS Data Transfer** |
| 530 | Tester:  Set up EDOS simulator for interface test at nominal data rates. |
| 540 | Ingest/Distribution Tech: Configure system to poll EDOS for data availability. |
| 550 | ETS: Start interface test, place DAN on simulator for ECS polling |
| 560 | Expected Results: System Ingest - Transfers EDOS DAN to ECS; Logs DAN receipt; (TBD - further info on Release A EDOS interface capabilities required.) |
| | **END OF INGEST ACTIVITY** |
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| | **CERES DATA PROCESSING ACTIVITY** |
| | **Start CERES Level 0 Data Processing** |
| 600 | Production Monitor: Uses the Autosys screen to observe the initiation of the DPR resulting from the ingest of CERES level 0 and ancillary data. |
| 610 | Expected Results: The subscription manager software releases the DPR for processing of the Level 0 data from its "held" state as the subscription notifications arrive.  This process is automatic and requires no operator intervention. |
| 620 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. |
| 630 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. |

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| 640 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. |
| 650 | Expected Results: The PGE processes the data. Bi-Directional SCANS (BDS) and Instrument Earth Scans (IES) data files are produced and sent to the data server for archival. |
| 660 | Production Monitor: Observes as the DPR finishes, its job box turn gray. |
| 670 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. |
| | **End CERES Level 0 Data Processing** |
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| | **Start ERBE-Like CERES Processing** |
| 680 | Tester: Stage data for ERBE-Like production of ES8 data product. (Method for PGE initiation is under development.) |
| 690 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. |
| 700 | Expected Results: The subscription manager software releases the DPR for processing of the BDS data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The BDS data is retrieved from the data server. |
| 710 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. |
| 720 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. |
| 730 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. |
| 740 | Expected Results: The PGE processes the data. ERBE Instantaneous (ES8) data files are produced and sent to the data server for archival. |
| 750 | Production Monitor: Observes as the DPR finishes, its job box turn gray. |
| 760 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. |
| | **End ERBE-Like CERES Processing** |
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| | **Start CERES MOA Data Production** |
| 800 | Tester: Stage data for Atmospheric Structures (MOA) data production. Data inputs include the APD, GAP, OPD and MWH data. (Method for PGE initiation is under development.) |
| 810 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. |

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| 820 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The APD, GAP, OPD and MWH data are retrieved from the data server. | |
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| 830 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 840 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 850 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 860 | Expected Results: The PGE processes the data.  MOA data files are produced and sent to the data server for archival. | |
| 870 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 880 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES MOA Data Production** | |
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| | **Start CERES SSF and CRF Data Production** | |
| 890 | Tester:  Stage data for Cloud Properties,TOA, and Surface Fluxes (CRF) data production.  Data inputs include the IES internal products, VIRS, TMI, and MODIS data from GSFC DAAC, Surface Maps, and Clear Reflectance Temperature History (CRH).  Output Product is Single Satellite CERES Footprint, TOA and Surface Flux, Clouds data .  (Method for PGE initiation is under development.) | |
| 900 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 910 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The required data are retrieved from the data server. | |
| 920 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 930 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 940 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 950 | Expected Results: The PGE processes the data.  SSF and CRH data files are produced and sent to the data server for archival. | |
| 960 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |

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| 970 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SSF and CRF Data Production** | |
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| | **Start CERES CRS Data Production** | |
| 980 | Tester:  Stage data for production of Single Satellite CERES Footprint, Radiative Fluxes and Clouds data (CRS).  Data inputs include the SSF data and surface maps.  (Method for PGE initiation is under development.) | |
| 1000 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1010 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The SSF data and surface maps are retrieved from the data server. | |
| 1020 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1030 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1040 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1050 | Expected Results: The PGE processes the data.  CRS files are produced and sent to the data server for archival. | |
| 1060 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1070 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES CRS Data Production** | |
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| | **Start CERES FSW Data Production** | |
| 1080 | Tester:  Stage data for production of Hourly Gridded Single Satellite Fluxes and Clouds (FSW) data.  Data input consists of CRS data.  (Method for PGE initiation is under development.) | |
| 1090 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1100 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The CRS data are retrieved from the data server. | |
| 1110 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |

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| 1120 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
|------|---|---|
| 1130 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1140 | Expected Results: The PGE processes the data.  FSW files are produced and sent to the data server for archival. | |
| 1150 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1160 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES FSW Data Production** | |
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| | **Start CERES GGEO Data Production** | |
| 1170 | Tester:  Stage data for production of ISCCP Gridded Radiances (GGEO) data.  Data input consists of ISCCP GEO data received from the LaRC V0 DAAC.  (Method for PGE initiation is under development.) | |
| 1180 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1190 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The GEO data are retrieved from the data server. | |
| 1200 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1210 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1220 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1230 | Expected Results: The PGE processes the data.  GGEO files are produced and staged for CERES SYN processing. | |
| 1240 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1250 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES GGEO Data Production** | |
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| | **Start CERES SYN Data Production** | |
| 1260 | Tester:  Stage data for production Synoptic Radiative Fluxes and Clouds (SYN) data.  Data input consists of FSW, GGEOand MOA data.  (Method for PGE initiation is under development.) | |

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| 1270 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
|------|------|------|
| 1280 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The MOA and FSW data are retrieved from the data server. | |
| 1290 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1300 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1310 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1320 | Expected Results: The PGE processes the data.  SYN files are produced and sent to the data server for archival. | |
| 1330 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1340 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SYN Data Production** | |
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| | **Start CERES SFC Data Production** | |
| 1350 | Tester:  Stage data for production of Hourly Gridded Single Satellite TOA and Surface Fluxes (SFC) data.  Data input consists of SSF data.  (Method for PGE initiation is under development.) | |
| 1360 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1370 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The SSF data are retrieved from the data server. | |
| 1380 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1390 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1400 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1410 | Expected Results: The PGE processes the data.  SFC files are produced and sent to the data server for archival. | |
| 1420 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |

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| 1430 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SFC Data Production** | |
| | **END CERES DATA PROCESSING ACTIVITY** | |
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| | **SDPF Data Ingest Steps** | |
| | These steps are executed for each TRMM data ingest from SDPF. | |
| 5000 | Ingest-Distribution Technician: invokes the Ingest Status Monitor tool (GUI display) from the main Ingest GUI screen. | |
| 5010 | Expected Results: The System identifies ongoing ingest requests (stored in Sybase tables) and displays them. | |
| 5020 | SDPF:  Application software automatically sets up to transfer Level 0 data to ECS.  A Data Availability Notice (DAN) is sent to ECS. | |
| 5030 | Expected Results: The System automatically checks the received DAN and returns a DAA.  The INGST CSCI automatically checkpoints request information extracted from the DAN into a Sybase data base. The System automatically coordinates the Level 0 data transfer with the SDPF using ftp services. | |
| 5040 | SDPF: A Data Availability Acknowledgment (DAA) is received. | |
| 5050 | Ingest-Distribution Technician:  Reviews Ingest Status Monitor display.  The Technician looks for ingest requests that have been queued for more than a few minutes. | |
| 5060 | Expected Results: The System automatically extracts metadata from transferred Level 0 data, checks the metadata (e.g., range checks), and inserts the data and metadata into the Level 0 Data Server component of the Ingest Subsystem. | |
| 5070 | Expected Results: Request state (active, file transferred, data insertion complete, etc.) is updated in the checkpointed request information. | |
| 5080 | Ingest-Distribution Technician:  Reviews the MSS Event Log to visually determine anomalous conditions (e.g., a pattern of metadata check errors). | |
| 5090 | Expected Results: The System automatically logs events by means of the MSS Event Logging capability.  "Events" include detection of out-of-range metadata values, incompletely-transferred data files, etc | |
| 5100 | SDPF: Application software receives a Data Delivery Notice (DDN), indicating the status of the Level 0 data ingest. | |
| 5110 | Expected Results: Upon completion of data insertion into the Data Server, status is automatically returned to the data provider (SDPF) by means of the DDN. | |
| 5120 | SDPF:  Application software transmits a Data Delivery Acknowledgment (DDA) to acknowledge receipt of the DDN. | |
| 5130 | Expected Results: After receipt of a DDA, on- going ingest request information is deleted.  Summary information is retained in the Sybase data base (as Ingest History Log data). | |

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| 5140 | Ingest-Distribution Technician: Observes the removal of the completed ingest request from the Status Monitor display. | |
| 5150 | Expected Results: Upon completion successful of data insertion into the Data Server, the SDSRV CI automatically determines the existence of subscriptions on the receipt of the TRMM Level 0 data. A subscription notice is sent to the requesting entity. | |
| 5160 | Ingest-Distribution Technician: Views summary information about completed ingest requests using the GUI Ingest History Log tool. | |
| 5170 | Expected Results: The System provides access to Sybase data base tables containing summary information on completed ingest requests, including completion status, data volume ingested, etc | |
| 5180 | Ingest-Distribution Technician: Generates a summary report on completed ingest requests. | |
| 5190 | Expected Results: The report (in two parts) gives summary statistics (e.g., number of data granules ingested, data volume ingested) and error statistics (e.g., number of errors of a given type encountered) for a specified time range. | |
| | **END SDPF Data Ingest Steps** | |
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| | **V0/NOAA ADC Ancillary Data Ingest Steps** <br> These steps are executed each time Ingest detects a Delivery Record while polling the V0 or NOAA ADC servers. | |
| 6000 | Ingest/Distribution Tech: Invokes the Ingest Status Monitor tool (GUI display) from the main Ingest GUI screen. | |
| 6010 | Expected Results: The System identifies ongoing ingest requests (stored in Sybase tables) and displays them | |
| 6020 | Remote Server: Ancillary data provider application software automatically sets up to write ancillary data and Delivery Record to specified location. | |
| 6030 | Expected Results: The System automatically checks a predetermined network location for the presence of a Delivery Record file. Once a Delivery Record file is located, the System automatically coordinates the ancillary data transfer with the data provider using ftp services. After the ancillary data and Delivery Record file is received, the INGST CSCI automatically checkpoints request information extracted from the Delivery Record into a Sybase data base. | |
| 6040 | Ingest/Distribution Tech: Periodically reviews Ingest Status Monitor display. The Technician looks for ingest requests that have been queued for an unexpected period (in the TRMM Mission era, anything on the queue for more than a few minutes.. | |
| 6050 | Expected Results: The System automatically extracts metadata from transferred ancillary data and checks the metadata (e.g., range checks). Format conversion is automatically performed for all ancillary products previously identified as requiring conversion. It then inserts the data and metadata into the appropriate Data Server. Request state (active, file transferred, data insertion complete, etc.) is updated in the checkpointed request information | |

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| 6060 | Ingest/Distribution Tech:  Periodically reviews the MSS Event Log to visually determine anomalous conditions (e.g., a pattern of metadata check errors). | |
| 6070 | Expected Results: The System automatically logs events by means of the MSS Event Logging capability.  "Events" include detection of out-of-range metadata values, incompletely-transferred data files, etc. Based on DAAC policy, selected events may be identified as "alerts", which trigger a visual change of state at the MSS Event Log display. | |
| 6080 | Ingest/Distribution Tech: Observes the removal of the completed ingest request from the Status Monitor display. | |
| 6090 | Expected Results: Upon completion of data insertion into the Data Server, status is automatically returned to the data provider by means of electronic mail.  Summary information is retained in the Sybase data base (as Ingest History Log data). | |
| 6100 | Expected Results: Upon completion of data insertion into the Data Server, the SDSRV CI automatically determines the existence of subscriptions on the receipt of the data. | |
| 6110 | Ingest/Distribution Tech:  Views summary information about completed ingest requests using the GUI Ingest History Log tool. The Data Ingest Technician generates a summary report on completed ingest requests.  The report (in two parts) gives summary statistics (e.g., number of data granules ingested, data volume ingested) and error statistics (e.g., number of errors of a given type encountered) for a specified time range. | |
| 6120 | Expected Results: The System provides access to Sybase data base tables containing summary information on completed ingest requests, including completion status, data volume ingested, etc. | |
| | **END V0/NOAA ADC Ancillary Data Ingest Steps** | |
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| | **Procedure Wrapup** | |
| 9000 | Ingest/Distribution Tech: Review Ingest History Log and status display | |
| 9010 | Tester: Query data server for existence of the files that were ingested and produced during this procedure.  Files should exist. | |
| 9015 | Tester: Print MSS logs and ingest history logs. | |
| 9020 | Tester: Secure the  following materials : <br><br> 1. MSS Log Printout <br><br> 2. Ingest History Log Printout <br><br> 3. Results of data server query for existing data files prior to procedure <br><br> 4. Results of data server query for existing data files after procedure <br><br> 5. Resource utilization reports | |

**Data Reduction and Analysis Steps:**

A. The following materials are required for analysis:
1. System Event Log Printout
2. Ingest History Log Printout
3. Results of data server query for existing data files prior to procedure
4. Results of data server query for existing data files after procedure
5. Resource utilization plots from MSS tools

B. DADS1640#A, DADS1235#A - Examine the Ingest History Logs to confirm that all data was ingested and archived. Confirm through queries to the archive that the data and metadata was stored. Extract and examine data to ensure that is was not corrupted.

C. DADS1805#A - Compare the Ingest History Logs, the data server query results, and the test data set descriptions for this procedure. Confirm that all data scheduled for ingest was logged and stored on the data server. Confirm that all metadata extracted and generated is accurate and complete.

D. DADS2780#A, EOSD0020#A, EDOS-B.2.1#A, EDOS-B.2.2.#A - Confirm the ingest data rate during the EDOS interface test by examining the HP Openview plots during the period of EDOS activity identified in the Ingest History Log. Confirm that the Ingest CIs were able to temporarily store the EDOS ingest files. Review the system event log for this period to confirm that all communication with EDOS proceeded according to the protocol outlined in the procedure. Confirm that response times and rates were within required ranges.

E. DADS2900#A - From the plots of the DRPHW capacity utilization, determine the capability of the DRPHW to handle 365 days worth of data based on the capacity consumption recorded during this procedure. Use data gathered to verify ECS performance models.

F. EOSD1010#A, EOSD1030#A - From MSS activity reports, verify the volume, processing load and traffic loads.

F. EOSD1050#A, EOSD1060#A, EOSD1070#A, and EOSD1080#A - The models for data processing performance at this site are validated using the metrics gathered the simulated production of higher level products.

| **Signature:** | **Date:** |
|---|---|
| **Witness Signature:** | **Date:** |

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## 12.5.1.2  Ingest and Archiving of Triple the Average Data Rates

| TEST Procedure No.: A120610.020$L | Date Executed: | Test Conductor: |
|---|---|---|

| Title: | Ingest and Archiving of Triple the Average Data Rates |
|---|---|

| Objective: | This procedure tests the capabilities of the ECS LaRC DAAC to ingest and process data at triple the average data rate while still meeting the daily performance requirements in a normal operational configuration.  The performance requirements for processing speed and capacity are derived from the SDPS Requirements Specification for the ECS.  Tables 12-1 and 12-2 summarize these performance requirements.   This procedure simulates a day's operations for the LaRC DAAC during which processing recovery requires three times the nominal data volume.  Also included is the processing of weekly and monthly data products. |
|---|---|

| Requirements | Acceptance Criteria |
|---|---|
| DADS1472#A | This requirement is verified through test. |
| | Each DADS shall contain the appropriate capacity to respond to contingencies, scheduling problems, and peak loads. |
| | The Ingest client CIs must be able to process three times the nominal load of input science data.  All other normal non-ingest functions must be able to proceed at nominal rates as this data is processed.  The execution of this procedure must occur with all other performance requirements linked to this procedure being meet.  Analysis of the system logs and verification of the successful archive of the data must show the capability to process the triple load and weekly and monthly processing support. |
| DADS1640#A | This requirement is verified through test. |
| | The DADS shall support the  number of files derivable from Appendix C, with the ability to expand to match growth. |
| | The Data Server must be able to handle the number of files as stated in the SDPS Requirements Specification for the ECS as the normal processing load.  The number of files are specified in Tables 12-1 and 12-2.. |
| | The capability of the ECS to expand match growth  is not verified in this procedure. |
| DADS2778#A | This requirement is verified through test. |
| | Each DADS shall be capable of receiving and archiving three days' worth of data (see Appendix C) in any given day. |
| | Release A archives throughput are calculated based on the capacity to accommodate the Release A supported missions until the operational turnover of Release B (Through 3 quarter of 98).  The archive LaRC archive is sized to support the CERES (TRMM) data (along with required ancillary) and V0 migration data.  Total throughput capacity for 3 days worth of data in 1 day, derived from the August, 1995 Technical Baseline (Release A procurement baseline), in GB/day is 40 @ LaRC. |
| | The execution of this procedure must occur with no errors and with all other performance requirements linked to this procedure being meet.  Analysis of the system logs and verification of the successful archive of the data must show the capability to process the triple load. |

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| DADS 2780#A | This requirement is verified through demonstration. |
| | Each DADS shall be capable of ingesting data at the maximum output bandwidth of the EDOS. |
| | The Ingest CI must be able to accept data at the maximum output rate of the EDOS of 22Mbps. The Ingest CI must be able to temporarily store 67 GB of data representing a normal maximum EDOS data transfer. The EDOS data ingest must proceed without error. |
| EOSD0020#A | This requirement is verified through test. |
| | ECS shall use and support the EDOS/Ecom interface to obtain the data capture, data archival, and data distribution services needed to achieve full end-to-end ECS functionality. |
| | The ECS must interact with a simulated EDOS interface. The interaction must follow the protocols for a polling ingest. All communications messages must be processed without error and recorded on the system log. |
| | No data archival or distribution of this data is in Release A. |
| EOSD1010#A | This requirement is verified through test. |
| | ECS shall support daily data volume, processing load, storage volume, instrument support, and data traffic as derivable from and specified in Appendix C and D. |
| | Refer to the Clarification text of the following requirements for Release A capacity requirements: Processing - PGS1300#A and PGS1310#A; Archiving Capacity - DADS1640#A, DADS1805#A, DADS2778#A, and DADS2900#A; and Archive Throughput - DADS2778#A and DADS3100#A. |
| | The system must be able to ingest and archive the number of files specified as the normal processing load as well as servicing the user requests. Concurrent handling of all traffic and support requirement is simulated and measured for response times and capacity consumption. |
| | Specific performance targets for this site are detailed in Tables 12-1 and 12-2. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| CERES0_005 | TBD | TBD | CERES Level 0 expedited data, 1 file and SFDU header, start time TBD | 1 |
| CERES0_006 | TBD | TBD | CERES Level 0 expedited data, 1 file and SFDU header, start time TBD | 1 |
| CERES0_007 | TBD | TBD | CERES Level 0 expedited data, 1 file and SFDU header, start time TBD | 1 |
| CERES0_008 | TBD | TBD | One days worth of CERES Level 0 data, 1 file and SFDU header, start time TBD | 1 |

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|---|---|---|---|---|
| TRMMPO_002 | | | TRMM Predictive Orbit Data | |
| TRMMDO_002 | | | TRMM Definitive Orbit Data | |
| TRMMEPHEM_00 2 | TBD | TBD | One days worth of TRMM Platform Ephemeris, 1 file in binary EPHEM format | 1 |
| SAGEII_003 | | | SAGE II Aerosol | |
| SAGEII_004 | | | SAGE II Ozone | |
| ISCCP_002 | | | ISCCP Radiances | |
| VIRS1B_002 | TBD | TBD | One days worth of VIRS 1B Radiance data, 16 files HDF/EOS format, start time TBD | |
| TMI2A_002 | TBD | TBD | One days worth of TMI 2A Profiling data, 16 files HDF/EOS format, start time TBD | 1 |
| NESDISSIC_002 | TBD | TBD | NESDIS Snow/Ice Cover, 10.5 MB, four files | |
| NESDISLLO_002 | TBD | TBD | NESDIS Layer/Level Ozone, one file, 1MB | |
| AVHRRAPD_002 | TBD | TBD | AVHRR Aesrosol Data | |
| NMC_GAP_002 | TBD | TBD | NMC Attitude, Temperature, humidity data | |
| TOMSOPD_002 | TBD | TBD | TOMS Ozone Profile Data | |
| SSMIMWH_002 | TBD | TBD | SSM I Microwave humidity data | |
| ProductionPlan | | | CERES daily data production plan. | |
| | | | | |

| Step No. | Input Action / Expected Results | Pass / Fail / Comments |
|---|---|---|
| | **Step-By-Step Procedures** | |
| 10 | Tester: Query data server for existence of any of the files that are to be ingested during this procedure. Files should not exist. | |
| 20 | Computer Operator: Monitor resource utilization for all DMGHW, Data Server HWCIs, INCLHW, and all network devices. Configure MSS tools to plot CPU, cache, and disk utilization and network throughput capacity utilization. | |
| 30 | Expected Results: System is configured for monitoring. | |
| 40 | Production Planner: Invoke the resource planning system. | |
| 30 | Expected Results: System - Planning Menu is displayed. | |
| 50 | Production Planner: Select "Create New Plan". | |
| 60 | Expected Results: Plan entry screen is displayed. | |
| 70 | Production Planner: For each ingest event for this procedure enter: ground event, description, start time, duration. | |
| 80 | Production Planner: Send the completed requests to the planning subsystem. | |
| 90 | Expected Results: System - Acknowledges receipt of the requests. Processes requests and automatically allocates resources, resource plan is sent to Production Planner. | |
| 100 | Expected Results: System - Processes requests and automatically allocates resources, resource plan is sent to Production Planner. | |
| 110 | Production Planner: Review plan and EMail a copy to the Archive Manager. | |
| 120 | Expected Results: The Archive Manager receives the EMail. | |
| 130 | Archive Manager: Allocate resources according to plan, send notification to the Resource Manager. | |
| 140 | Expected Results: Resource Manager receives plan. | |
| 150 | Resource Manager: Review configuration and resolve discrepancies. | |
| 160 | Expected Results: System is configured for planned activity. | |
| 170 | Ingest/Distribution Tech: Monitor ingest activity. | |
| 180 | **Start Pull Background Load** | |
| 190 | Tester: Start concurrent execution of test procedure **A120620.010$L.** | |
| 200 | Tester: Start concurrent execution of test procedure **A120620.020$L.** | |

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| | **Start Concurrent CERES Data Processing** |
| | The following steps are performed concurrently with the ingest processing.  Test personnel performing the ingest functions should not wait for the completion CERES data production steps.  **Note: The CERES data processing steps make one pass through the production of "daily" data products. The execution of data processing is under the automated control of Autosys.  Whenever the planning system starts a production job or PGE, the steps relating to that particular PGE are executed.  Each series of steps for a particular PGE are executed a number of times during this procedure. (Most of the data products created have a time coverage of one hour.  During a day, those products are created 24 times)** |
| 210 | Production Planner:   Notes the jobs scheduled for processing today in the month long current active plan.  The Production Planner, using the planning workbench software, initiates the "downloading" of the daily schedule of jobs to the Autosys scheduling tool.  (Details on the execution of this test are under development.) |
| 220 | Expected Results: System converts DPRs into Autosys commands using the Autosys JIL interface.  Autosys displays each DPR in a job box which contains all the required jobs for a PGE.  Autosys automatically places the jobs in a "held" state while waiting on their data dependencies. |
| 230 | Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software as subscription requests are fulfilled. |
| 240 | Expected Results: The subscription manager software releases the appropriate DPRs from their "held" state as the subscription notifications arrive.  This process is automatic and requires no operator intervention. |
| 250 | Production Monitor: Uses the Autosys Screen to observe and determine processing status of all DPRs throughout the day. |
| | **Configure Polling for V0 and NOAA Ancillary Data** |
| 260 | Ingest/Distribution Tech: Setup Ingest to "Poll with Delivery Record" the LaRC V0 server every 15 minutes. |
| 270 | Expected Results: Ingest will poll the V0 server every 15 minutes.  If a DR has been staged on the V0, Sage II ancillary data is transferred and steps 6000 through 6120 of this procedure are executed for the data staged. |
| 280 | Ingest/Distribution Tech: Setup Ingest to "Poll with Delivery Record" the NOAA ADC every 20 minutes. |
| 290 | Expected Results: Ingest will poll the NOAA ADC every 20 minutes.  If a DR has been staged on the server, NESDIS ancillary data is transferred and steps 6000 through 6120 of this procedure are executed for the data staged. |
| | |
| | **INGEST  ACTIVITY** |
| | **Start First SDPF CERES Expedited Data Transfer** |
| 300 | Tester: Coordinate with SDPF for transfer of data set CERES0_001 and execute SDPF data transfer procedures, steps 5000 through 5190 . |

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| 310 | Expected Results: CERES Expedited data is ingested and archived. | |
| | **SCF Subscription Activated** | |
| 311 | Expected Results: System Data Server - Based on CERES SCF subscription, stages data and metadata, logs status to system log, sends a DAN to SCF. | |
| 312 | CERES SCF: Sends a DAA to ECS, Transfers data file, sends a DDN to ECS. | |
| 313 | Expected Results: System Data Server - Receives and logs DAA; Receives and logs DDN; Deletes data files from staging | |
| 314 | Ingest/Distribution Tech: Monitor transfer processing; verify successful transfer. | |
| 315 | Tester: Perform a compare of the data file before it was sent from the remote and after it was received by THE SCF. | |
| 316 | Expected Results: The files compared should be identical. | |
| | | |
| | **Stage NESDIS Ancillary Data** | |
| 320 | Tester: Stage DR for NESDISSIC_OO1 data file transfer on NOAA ADC. (Assumes NOAA Participation in Test) | |
| 330 | Expected Results: Test steps 6000 through 6120 will be executed when Ingest polling detects the DR. | |
| | **Start SDPF CERES Level 0 Data Transfer** | |
| 340 | Tester: Coordinate with SDPF for transfer of data set CERES0_004 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 350 | Expected Results: CERES Level 0 data is ingested and archived. | |
| 360 | Tester: Coordinate with SDPF for transfer of TRMM Ephemeris data and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 370 | Expected Results: TRMM Ephemeris data is ingested and archived.  The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled.  DPR for CERES Level 0 processing PGE is intiated. | |
| | **Ingest Ancillary Data From GSFC DAAC** | |
| 380 | Tester:  Coordinate with GSFC DAAC Test Conductor the ingest of VIRS, TMI, MODIS, AVHRR (APD), NCEP (GAP),  SSM/I (MWH), and TOMS (OPD) data.  These products will be sent to LaRC upon archival at GSFC based on LaRC subscriptions for the products. | |
| 390 | Expected Results:  Timetable for ingest of ancillary products from GSFC DAAC is established. | |
| 400 | GSFC DAAC: Notifies LaRC DAAC of availability of data based on LaRC subscription. | |
| 410 | Expected Results: Details of inter-DAAC transfer protocol are being investigated.  Will be inserted when available. | |
| | **Start Second SDPF CERES Expedited Data Transfer** | |

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| 450 | Tester: Coordinate with SDPF for transfer of data set CERES0_002 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 460 | Expected Results: CERES Expedited data is ingested and archived. | |
| | **Stage NESDIS Ancillary Data** | |
| 470 | Tester: Stage DR for NESDISLLO_001 data file transfer on NOAA ADC server. | |
| 480 | Expected Results: Test steps 6000 through 6120 will be executed when Ingest polling detects the DR. | |
| | **Ingest ISCCP Data From V0 DAAC** | |
| 490 | Tester: Stage DR for ISCCP_OO1 data file transfer on LARC V0 DAAC. | |
| 500 | Expected Results: Test steps 6000 through 6120 will be executed when Ingest polling detects the DR. | |
| | **Start Third SDPF CERES Expedited Data Transfer** | |
| 510 | Tester: Coordinate with SDPF for transfer of data set CERES0_003 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 520 | Expected Results: CERES Expedited data is ingested and archived. | |
| | **EDOS Data Transfer** | |
| 530 | Tester:  Set up EDOS simulator for interface test at nominal data rates. | |
| 540 | Ingest/Distribution Tech: Configure system to poll EDOS for data availability. | |
| 550 | ETS: Start interface test, place DAN on simulator for ECS polling | |
| 560 | Expected Results: System Ingest - Transfers EDOS DAN to ECS; Logs DAN receipt; (TBD - further info on Release A EDOS interface capabilities required.) | |
| | **END OF INGEST ACTIVITY** | |
| | | |
| | **CERES DATA PROCESSING ACTIVITY** | |
| | **Start CERES Level 0 Data Processing** | |
| 600 | Production Monitor: Uses the Autosys screen to observe the initiation of the DPR resulting from the ingest of CERES level 0 and ancillary data. | |
| 610 | Expected Results: The subscription manager software releases the DPR for processing of the Level 0 data from its "held" state as the subscription notifications arrive.  This process is automatic and requires no operator intervention. | |
| 620 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 630 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |

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| 640 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 650 | Expected Results: The PGE processes the data. Bi-Directional SCANS (BDS) and Instrument Earth Scans (IES) data files are produced and sent to the data server for archival. | |
| 660 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 670 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES Level 0 Data Processing** | |
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| | **Start ERBE-Like CERES Processing** | |
| 680 | Tester: Stage data for ERBE-Like production of ES8 data product. (Method for PGE initiation is under development.) | |
| 690 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 700 | Expected Results: The subscription manager software releases the DPR for processing of the BDS data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The BDS data is retrieved from the data server. | |
| 710 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 720 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 730 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 740 | Expected Results: The PGE processes the data. ERBE Instantaneous (ES8) data files are produced and sent to the data server for archival. | |
| 750 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 760 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End ERBE-Like CERES Processing** | |
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| | **Start CERES MOA Data Production** | |
| 800 | Tester: Stage data for Atmospheric Structures (MOA) data production. Data inputs include the APD, GAP, OPD and MWH data. (Method for PGE initiation is under development.) | |
| 810 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |

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| 820 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The APD, GAP, OPD and MWH data are retrieved from the data server. | |
| 830 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 840 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 850 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 860 | Expected Results: The PGE processes the data.  MOA data files are produced and sent to the data server for archival. | |
| 870 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 880 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES MOA Data Production** | |
| | | |
| | **Start CERES SSF and CRF Data Production** | |
| 890 | Tester:  Stage data for Cloud Properties,TOA, and Surface Fluxes (CRF) data production.  Data inputs include the IES internal products, VIRS, TMI, and MODIS data from GSFC DAAC, Surface Maps, and Clear Reflectance Temperature History (CRH).  Output Product is Single Satellite CERES Footprint, TOA and Surface Flux, Clouds data .  (Method for PGE initiation is under development.) | |
| 900 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 910 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The required data are retrieved from the data server. | |
| 920 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 930 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 940 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 950 | Expected Results: The PGE processes the data.  SSF and CRH data files are produced and sent to the data server for archival. | |
| 960 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |

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| 970 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. |
| | **End CERES SSF and CRF Data Production** |
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| | **Start CERES CRS Data Production** |
| 980 | Tester:  Stage data for production of Single Satellite CERES Footprint, Radiative Fluxes and Clouds data (CRS).  Data inputs include the SSF data and surface maps.  (Method for PGE initiation is under development.) |
| 1000 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. |
| 1010 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The SSF data and surface maps are retrieved from the data server. |
| 1020 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. |
| 1030 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following:  Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. |
| 1040 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. |
| 1050 | Expected Results: The PGE processes the data.  CRS files are produced and sent to the data server for archival. |
| 1060 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. |
| 1070 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. |
| | **End CERES CRS Data Production** |
| | |
| | **Start CERES FSW Data Production** |
| 1080 | Tester:  Stage data for production of Hourly Gridded Single Satellite Fluxes and Clouds (FSW) data.  Data input consists of CRS data.  (Method for PGE initiation is under development.) |
| 1090 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. |
| 1100 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The CRS data are retrieved from the data server. |
| 1110 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. |

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| 1120 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1130 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1140 | Expected Results: The PGE processes the data. FSW files are produced and sent to the data server for archival. | |
| 1150 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 1160 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES FSW Data Production** | |
| | | |
| | **Start CERES GGEO Data Production** | |
| 1170 | Tester: Stage data for production of ISCCP Gridded Radiances (GGEO) data. Data input consists of ISCCP GEO data received from the LaRC V0 DAAC. (Method for PGE initiation is under development.) | |
| 1180 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 1190 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The GEO data are retrieved from the data server. | |
| 1200 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1210 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1220 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1230 | Expected Results: The PGE processes the data. GGEO files are produced and staged for CERES SYN processing. | |
| 1240 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 1250 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES GGEO Data Production** | |
| | | |
| | **Start CERES SYN Data Production** | |
| 1260 | Tester: Stage data for production Synoptic Radiative Fluxes and Clouds (SYN) data. Data input consists of FSW, GGEOand MOA data. (Method for PGE initiation is under development.) | |

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| 1270 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 1280 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The MOA and FSW data are retrieved from the data server. | |
| 1290 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1300 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1310 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1320 | Expected Results: The PGE processes the data. SYN files are produced and sent to the data server for archival. | |
| 1330 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 1340 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SYN Data Production** | |
| | | |
| | **Start CERES SFC Data Production** | |
| 1350 | Tester: Stage data for production of Hourly Gridded Single Satellite TOA and Surface Fluxes (SFC) data. Data input consists of SSF data. (Method for PGE initiation is under development.) | |
| 1360 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 1370 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The SSF data are retrieved from the data server. | |
| 1380 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1390 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1400 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1410 | Expected Results: The PGE processes the data. SFC files are produced and sent to the data server for archival. | |
| 1420 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |

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| 1430 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SFC Data Production** | |
| | | |
| | **Start ERBE-Like Monthly Processing** | |
| 1440 | Tester:  Stage data for production of ES9, ES-4, and ES-4G data products.  Data input consists of the EDDB data.  (Method for PGE initiation is under development.) | |
| 1450 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1460 | Expected Results: The subscription manager software releases the DPR for processing of the BDS data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The EDDB data is retrieved from the data server. | |
| 1470 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1480 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1490 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1500 | Expected Results: The PGE processes the data.  ERBE-like Monthly Geographical Averages (ES-4) .  ERBE-like Monthly Geographical Averages (ES-4), and ERBE-like Monthly Regional Averages (ES-9) data files are produced and sent to the data server for archival. | |
| 1510 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1520 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End ERBE-Like Monthly Processing** | |
| | | |
| | **Start SRBAVG Monthly Processing** | |
| 1530 | Tester:  Stage data for production Monthly TOA and SRB Averages (SRBAVG).  Data input consists of SFC, MOA, and GGEO data.  (Method for PGE initiation is under development.) | |
| 1540 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1550 | Expected Results: The subscription manager software releases the DPR for processing of the required data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The SFC, MOA, and GGEO data are retrieved from the data server. | |

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| 1560 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1570 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1580 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1590 | Expected Results: The PGE processes the data. SRBAVG data files are produced and sent to the data server for archival. | |
| 1600 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 1610 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End SRBAVG Monthly Processing** | |
| | | |
| | **Start AVG and ZAVG Monthly Processing** | |
| 1620 | Tester: Stage data for production Monthly Regional Radiative Fluxes and Clouds (AVG) and TOA and Monthly Zonal and Global Radiative Fluxes and Clouds (ZAVG) data. Data input consists of SYN data. (Method for PGE initiation is under development.) | |
| 1630 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 1640 | Expected Results: The subscription manager software releases the DPR for processing of the required data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The SYN data are retrieved from the data server. | |
| 1650 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1660 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1670 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1680 | Expected Results: The PGE processes the data. AVG and ZAVG data files are produced and sent to the data server for archival. | |
| 1690 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 1700 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End AVG and ZAVG Monthly Processing** | |
| | **END CERES DATA PROCESSING ACTIVITY** | |
| | | |

| | **SDPF Data Ingest Steps** | |
|---|---|---|
| | These steps are executed for each TRMM data ingest from SDPF. | |
| 5000 | Ingest-Distribution Technician: invokes the Ingest Status Monitor tool (GUI display) from the main Ingest GUI screen. | |
| 5010 | Expected Results: The System identifies ongoing ingest requests (stored in Sybase tables) and displays them. | |
| 5020 | SDPF: Application software automatically sets up to transfer Level 0 data to ECS. A Data Availability Notice (DAN) is sent to ECS. | |
| 5030 | Expected Results: The System automatically checks the received DAN and returns a DAA. The INGST CSCI automatically checkpoints request information extracted from the DAN into a Sybase data base. The System automatically coordinates the Level 0 data transfer with the SDPF using ftp services. | |
| 5040 | SDPF: A Data Availability Acknowledgment (DAA) is received. | |
| 5050 | Ingest-Distribution Technician: Reviews Ingest Status Monitor display. The Technician looks for ingest requests that have been queued for more than a few minutes. | |
| 5060 | Expected Results: The System automatically extracts metadata from transferred Level 0 data, checks the metadata (e.g., range checks), and inserts the data and metadata into the Level 0 Data Server component of the Ingest Subsystem. | |
| 5070 | Expected Results: Request state (active, file transferred, data insertion complete, etc.) is updated in the checkpointed request information. | |
| 5080 | Ingest-Distribution Technician: Reviews the MSS Event Log to visually determine anomalous conditions (e.g., a pattern of metadata check errors). | |
| 5090 | Expected Results: The System automatically logs events by means of the MSS Event Logging capability. "Events" include detection of out-of-range metadata values, incompletely-transferred data files, etc | |
| 5100 | SDPF: Application software receives a Data Delivery Notice (DDN), indicating the status of the Level 0 data ingest. | |
| 5110 | Expected Results: Upon completion of data insertion into the Data Server, status is automatically returned to the data provider (SDPF) by means of the DDN. | |
| 5120 | SDPF: Application software transmits a Data Delivery Acknowledgment (DDA) to acknowledge receipt of the DDN. | |
| 5130 | Expected Results: After receipt of a DDA, on- going ingest request information is deleted. Summary information is retained in the Sybase data base (as Ingest History Log data). | |
| 5140 | Ingest-Distribution Technician: Observes the removal of the completed ingest request from the Status Monitor display. | |
| 5150 | Expected Results: Upon completion successful of data insertion into the Data Server, the SDSRV CI automatically determines the existence of subscriptions on the receipt of the TRMM Level 0 data. A subscription notice is sent to the requesting entity. | |

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| 5160 | Ingest-Distribution Technician: Views summary information about completed ingest requests using the GUI Ingest History Log tool. | |
| 5170 | Expected Results: The System provides access to Sybase data base tables containing summary information on completed ingest requests, including completion status, data volume ingested, etc | |
| 5180 | Ingest-Distribution Technician: Generates a summary report on completed ingest requests. | |
| 5190 | Expected Results: The report (in two parts) gives summary statistics (e.g., number of data granules ingested, data volume ingested) and error statistics (e.g., number of errors of a given type encountered) for a specified time range. | |
| | **END SDPF Data Ingest Steps** | |
| | | |
| | **V0/NOAA ADC Ancillary Data Ingest Steps** | |
| | Thses steps are executed each time Ingest detects a Delivery Record while polling the V0 or NOAA ADC servers. | |
| 6000 | Ingest/Distribution Tech: Invokes the Ingest Status Monitor tool (GUI display) from the main Ingest GUI screen. | |
| 6010 | Expected Results: The System identifies ongoing ingest requests (stored in Sybase tables) and displays them | |
| 6020 | Remote Server: Ancillary data provider application software automatically sets up to write ancillary data and Delivery Record to specified location. | |
| 6030 | Expected Results: The System automatically checks a predetermined network location for the presence of a Delivery Record file. Once a Delivery Record file is located, the System automatically coordinates the ancillary data transfer with the data provider using ftp services. After the ancillary data and Delivery Record file is received, the INGST CSCI automatically checkpoints request information extracted from the Delivery Record into a Sybase data base. | |
| 6040 | Ingest/Distribution Tech: Periodically reviews Ingest Status Monitor display. The Technician looks for ingest requests that have been queued for an unexpected period (in the TRMM Mission era, anything on the queue for more than a few minutes.. | |
| 6050 | Expected Results: The System automatically extracts metadata from transferred ancillary data and checks the metadata (e.g., range checks). Format conversion is automatically performed for all ancillary products previously identified as requiring conversion. It then inserts the data and metadata into the appropriate Data Server. Request state (active, file transferred, data insertion complete, etc.) is updated in the checkpointed request information | |
| 6060 | Ingest/Distribution Tech: Periodically reviews the MSS Event Log to visually determine anomalous conditions (e.g., a pattern of metadata check errors). | |

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| 6070 | Expected Results: The System automatically logs events by means of the MSS Event Logging capability. "Events" include detection of out-of-range metadata values, incompletely-transferred data files, etc. Based on DAAC policy, selected events may be identified as "alerts", which trigger a visual change of state at the MSS Event Log display. | |
| 6080 | Ingest/Distribution Tech: Observes the removal of the completed ingest request from the Status Monitor display. | |
| 6090 | Expected Results: Upon completion of data insertion into the Data Server, status is automatically returned to the data provider by means of electronic mail. Summary information is retained in the Sybase data base (as Ingest History Log data). | |
| 6100 | Expected Results: Upon completion of data insertion into the Data Server, the SDSRV CI automatically determines the existence of subscriptions on the receipt of the data. | |
| 6110 | Ingest/Distribution Tech: Views summary information about completed ingest requests using the GUI Ingest History Log tool. The Data Ingest Technician generates a summary report on completed ingest requests. The report (in two parts) gives summary statistics (e.g., number of data granules ingested, data volume ingested) and error statistics (e.g., number of errors of a given type encountered) for a specified time range. | |
| 6120 | Expected Results: The System provides access to Sybase data base tables containing summary information on completed ingest requests, including completion status, data volume ingested, etc. | |
| | **END V0/NOAA ADC Ancillary Data Ingest Steps** | |
| | | |
| | **Procedure Wrapup** | |
| 9000 | Ingest/Distribution Tech: Review Ingest History Log and status display | |
| 9010 | Tester: Query data server for existence of the files that were ingested and produced during this procedure. Files should exist. | |
| 9015 | Tester: Print MSS logs and ingest history logs. | |
| 9020 | Tester: Secure the following materials : <br> 1. MSS Log Printout <br> 2. Ingest History Log Printout <br> 3. Results of data server query for existing data files prior to procedure <br> 4. Results of data server query for existing data files after procedure <br> 5. Resource utilization reports | |

| Data Reduction and Analysis Steps: | | |
|---|---|---|
| A. The following materials are required for analysis: <br>    1. System Event Log Printout <br>    2. Ingest History Log Printout <br>    3. Results of data server query for existing data files prior to procedure <br>    4. Results of data server query for existing data files after procedure <br>    5. Resource utilization reports from MSS tools. <br> B. DADS1472#A, DADS1640#A, EOSD1010#A - Compare the Ingest History Logs, the data server query results, and the test data set descriptions for this procedure.  Confirm that all data scheduled for ingest was logged, received and stored on the data server.  Confirm that all metadata extracted and generated is accurate complete.  Retrieve the data from archive and verify that it was archived without corruption. <br> C. DADS2778#A - Compare the data server query results, and the test data set descriptions for this procedure.  Confirm that all data scheduled for ingest was archived.  Confirm that all metadata extracted and generated is accurate and complete. <br> D. DADS2780#A, EOSD0020#A - Confirm the ingest data rate during the EDOS interface test by examining the HP Openview plots during the period of EDOS activity identified in the Ingest History Log.  Confirm that the Ingest CIs were able to temporarily store the EDOS ingest files.  Review the system event log for this period to confirm that all communication with EDOS proceeded according to the protocol outlined in the procedure. | | |
| **Signature:** | | **Date:** |
| **Witness Signature:** | | **Date:** |

## 12.5.1.3  GSFC DAAC Data Reprocessing Support and Archiving

This procedure is not executed at the LaRC site.

## 12.5.1.4  LaRC DAAC Data Reprocessing Support and Archiving

| **TEST Procedure No.:** <br> A120610.040$L | **Date Executed:** | **Test Conductor:** |
|---|---|---|
| **Title:** | LaRC DAAC Data Reprocessing Support and Archiving | |
| **Objective:** | This procedure tests the capabilities of the ECS to support reprocessing of CERES TRMM data. It verifies that ECS at the LaRC DAAC can ingest and archive the Level 0 CERES data to be reprocessed and can produce daily data products from that data.  This procedure is to be executed as a part of procedure A120610.020$L. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS2778#A | This requirement is verified through test. |
| | Each DADS shall be capable of receiving and archiving three days' worth of data (see Appendix C) in any given day. |
| | The SDPS must be able to archive three times the daily load of input science data as specified in Table 12-1.  The execution of this procedure must occur with no errors and with all other performance requirements linked to this procedure being meet.  Analysis of the system logs and verification of the successful archive of the data must show the capability to process the triple load. |

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| EOSD1040#A | This requirement is verified through test. |
| | ECS shall provide sufficient capacity to permit the reprocessing of all EOS science data at twice the income rate at a minimum, concurrently with processing of new data. |
| | Two days worth of CERES Level 0 data must be ingested and processed into all higher level daily CERES products concurrently with normal daily processing. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| CERES0_009 | TBD | TBD | One days worth of CERES Level 0 data, 1 file and  SFDU header, start time TBD | 1 |
| CERES0_010 | TBD | TBD | One days worth of CERES Level 0 data, 1 file and  SFDU header, start time TBD | 1 |
| TRMMPO_003 | | | TRMM Predictive Orbit Data | |
| TRMMDO_003 | | | TRMM Definitive Orbit Data | |
| TRMMEPHEM_003 | TBD | TBD | One days worth of TRMM Platform Ephemeris, 1 file in binary EPHEM format | 1 |
| ProductionRePlan | | | CERES daily data production plan modified to include reprocessing. | |
| | | | | |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | Tester: Query data server for existence of any of the files that are to be ingested during this procedure. Files should not exist. | |
| 20 | Production Planner: Starts the planning workbench. | |
| 30 | Expected Results: The AutoSys Job Scheduling COTS used by Processing provides several views of the processing activity, one of them being the timeline view of TimeScape. The planning workbench is the mechanism for planning and replanning of processing. The planning workbench seeds the AutoSys Job Scheduling COTS with processing jobs. | |
| 40 | Production Planner: Selects and opens the current weekly plan being used for the activation/schedule seeding operation.. | |
| 50 | Expected Results: Options available to the planner from the planning workbench include:<br>- Prepare New Plan & Save<br>- Open Existing Plan<br>- Update Plan<br>- View Production Requests<br>- Activate Plan<br>- View Plan (timeline)<br>- Baseline Plan<br>- View Plan Activity Log | |
| 60 | Production Planner: Reviews the resulting schedule and works to modify the plan to perform the required reprocessing. Workbench tools to update the plan and view the plan in timeline form are used. The planner selects "Activate Plan" from the planning workbench options. Information from this updated plan will be rolled into the processing system COTS scheduler. | |
| 70 | Expected Results: The new plan includes reprocessing. | |
| 80 | Production Planner: Enters the time range of the scheduling period (i.e., current time to end of the shift), enters any comments appropriate to the schedule and selects Activate | |
| 90 | Expected Results: The system creates an ordered list of the activities which are currently active in data processing and integrates with it other activities that may be scheduled within the scheduling window or time period. The planning system processes the list: if the DPR is already active (i.e., in the data processing system), the entry available to the data processing system is updated to insure most current timing information with possible priority adjustments. If the DPR is not active, it is scheduled into the data processing system. The data processing system will initiate PGE jobs according to the schedule of jobs transferred from the planning system. | |

| | | |
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| | **Start Concurrent CERES Data Processing** | |
| | The following steps are performed concurrently with the ingest processing. Test personnel performing the ingest functions should not wait for the completion CERES data production steps. **Note: The CERES data processing steps make one pass through the production of "daily" data products. The execution of data processing is under the automated control of Autosys. Whenever the planning system starts a production job or PGE, the steps relating to that particular PGE are executed. Each series of steps for a particular PGE are executed a number of times during this procedure. (Most of the data products created have a time coverage of one hour. During a day, those products are created 24 times)** | |
| 100 | Expected Results: System converts DPRs into Autosys commands using the Autosys JIL interface. Autosys displays each DPR in a job box which contains all the required jobs for a PGE. Autosys automatically places the jobs in a "held" state while waiting on their data dependencies. | |
| 110 | Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software as subscription requests are fulfilled. | |
| 120 | Expected Results: The subscription manager software releases the appropriate DPRs from their "held" state as the subscription notifications arrive. This process is automatic and requires no operator intervention. | |
| 130 | Production Monitor: Uses the Autosys Screen to observe and determine processing status of all DPRs throughout the day. | |
| | **Start SDPF CERES Level 0 Data Transfer** | |
| 140 | Tester: Coordinate with SDPF for transfer of data set CERES0_009 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 150 | Expected Results: CERES Level 0 data is ingested and archived. | |
| 160 | Tester: Coordinate with SDPF for transfer of TRMM Ephemeris data and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 170 | Expected Results: TRMM Ephemeris data is ingested and archived. The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. DPR for CERES Level 0 processing PGE is intiated. | |
| | **Start Second SDPF CERES Level 0 Data Transfer** | |
| 180 | Tester: Coordinate with SDPF for transfer of data set CERES0_010 and execute SDPF data transfer procedures, steps 5000 through 5190 . | |
| 190 | Expected Results: CERES Level 0 data is ingested and archived. | |
| 200 | Tester: Coordinate with SDPF for transfer of TRMM Ephemeris data and execute SDPF data transfer procedures, steps 5000 through 5190 . | |

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| 210 | Expected Results: TRMM Ephemeris data is ingested and archived.  The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled.  DPR for CERES Level 0 processing PGE is intiated. | |
| | | |
| | **CERES DATA PROCESSING ACTIVITY** | |
| | **Start CERES Level 0 Data Processing** | |
| 220 | Production Monitor: Uses the Autosys screen to observe the initiation of the DPR resulting from the ingest of CERES level 0 and ancillary data. | |
| 230 | Expected Results: The subscription manager software releases the DPR for processing of the Level 0 data from its "held" state as the subscription notifications arrive.  This process is automatic and requires no operator intervention. | |
| 240 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 250 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 260 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 270 | Expected Results: The PGE processes the data.  Bi-Directional SCANS (BDS) and Instrument Earth Scans (IES) data files are produced and sent to the data server for archival. | |
| 280 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 290 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES Level 0 Data Processing** | |
| | | |
| | **Start ERBE-Like CERES Processing** | |
| 300 | Tester:  Stage data for ERBE-Like production of ES8 data product.  (Method for PGE initiation is under development.) | |
| 690 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 700 | Expected Results: The subscription manager software releases the DPR for processing of the BDS data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The BDS data is retrieved from the data server. | |
| 710 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 720 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |

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| 730 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. |
| 740 | Expected Results: The PGE processes the data. ERBE Instantaneous (ES8) data files are produced and sent to the data server for archival. |
| 750 | Production Monitor: Observes as the DPR finishes, its job box turn gray. |
| 760 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. |
| | **End ERBE-Like CERES Processing** |
| | |
| | **Start CERES MOA Data Production** |
| 800 | Tester: Stage data for Atmospheric Structures (MOA) data production. Data inputs include the APD, GAP, OPD and MWH data. (Method for PGE initiation is under development.) |
| 810 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. |
| 820 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The APD, GAP, OPD and MWH data are retrieved from the data server. |
| 830 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. |
| 840 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. |
| 850 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. |
| 860 | Expected Results: The PGE processes the data. MOA data files are produced and sent to the data server for archival. |
| 870 | Production Monitor: Observes as the DPR finishes, its job box turn gray. |
| 880 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. |
| | **End CERES MOA Data Production** |
| | |
| | **Start CERES SSF and CRF Data Production** |
| 890 | Tester: Stage data for Cloud Properties,TOA, and Surface Fluxes (CRF) data production. Data inputs include the IES internal products, VIRS, TMI, and MODIS data from GSFC DAAC, Surface Maps, and Clear Reflectance Temperature History (CRH). Output Product is Single Satellite CERES Footprint, TOA and Surface Flux, Clouds data . (Method for PGE initiation is under development.) |

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| 900 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 910 | Expected Results: The subscription manager software releases the DPR for processing of the input data sets data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The required data are retrieved from the data server. | |
| 920 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 930 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 940 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 950 | Expected Results: The PGE processes the data. SSF and CRH data files are produced and sent to the data server for archival. | |
| 960 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 970 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SSF and CRF Data Production** | |
| | | |
| | **Start CERES CRS Data Production** | |
| 980 | Tester: Stage data for production of Single Satellite CERES Footprint, Radiative Fluxes and Clouds data (CRS). Data inputs include the SSF data and surface maps. (Method for PGE initiation is under development.) | |
| 1000 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 1010 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The SSF data and surface maps are retrieved from the data server. | |
| 1020 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1030 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1040 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1050 | Expected Results: The PGE processes the data. CRS files are produced and sent to the data server for archival. | |
| 1060 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |

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| 1070 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES CRS Data Production** | |
| | | |
| | **Start CERES FSW Data Production** | |
| 1080 | Tester:  Stage data for production of Hourly Gridded Single Satellite Fluxes and Clouds (FSW) data.  Data input consists of CRS data.  (Method for PGE initiation is under development.) | |
| 1090 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1100 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The CRS data are retrieved from the data server. | |
| 1110 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1120 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1130 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1140 | Expected Results: The PGE processes the data.  FSW files are produced and sent to the data server for archival. | |
| 1150 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1160 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES FSW Data Production** | |
| | | |
| | **Start CERES GGEO Data Production** | |
| 1170 | Tester:  Stage data for production of ISCCP Gridded Radiances (GGEO) data.  Data input consists of ISCCP GEO data received from the LaRC V0 DAAC.  (Method for PGE initiation is under development.) | |
| 1180 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1190 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The GEO data are retrieved from the data server. | |
| 1200 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |

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| 1210 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
|------|---|---|
| 1220 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1230 | Expected Results: The PGE processes the data.  GGEO files are produced and staged for CERES SYN processing. | |
| 1240 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1250 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES GGEO Data Production** | |
| | | |
| | **Start CERES SYN Data Production** | |
| 1260 | Tester:  Stage data for production Synoptic Radiative Fluxes and Clouds (SYN) data.  Data input consists of FSW, GGEOand MOA data.  (Method for PGE initiation is under development.) | |
| 1270 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the  subscription requests are fulfilled. | |
| 1280 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives.  This process is automatic and requires no operator intervention.  The MOA and FSW data are retrieved from the data server. | |
| 1290 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1300 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager.  The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1310 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the  DPR. | |
| 1320 | Expected Results: The PGE processes the data.  SYN files are produced and sent to the data server for archival. | |
| 1330 | Production Monitor:  Observes as the DPR finishes, its job box turn gray. | |
| 1340 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SYN Data Production** | |
| | | |
| | **Start CERES SFC Data Production** | |
| 1350 | Tester:  Stage data for production of Hourly Gridded Single Satellite TOA and Surface Fluxes (SFC) data.  Data input consists of SSF data.  (Method for PGE initiation is under development.) | |

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| | |  |
|---|---|---|
| 1360 | Expected Results: Expected Results: The Data Server Subsystem notifies Planning subsystem subscription manager software that the subscription requests are fulfilled. | |
| 1370 | Expected Results: The subscription manager software releases the DPR for processing data from its "held" state as the subscription notification arrives. This process is automatic and requires no operator intervention. The SSF data are retrieved from the data server. | |
| 1380 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1390 | Expected Results: The Processing Subsystem scheduling engine (Autosys) dispatches the DPR as specified by the subscription manager. The DPR contains the following: Resource Allocation, Data Staging, Environment Preparation, PGE execution, Data Destaging and Resource Deallocation. | |
| 1400 | Production Monitor: Uses the Autosys screen to observe and determine processing status of the DPR. | |
| 1410 | Expected Results: The PGE processes the data. SFC files are produced and sent to the data server for archival. | |
| 1420 | Production Monitor: Observes as the DPR finishes, its job box turn gray. | |
| 1430 | Expected Results: The Processing Subsystem scheduling engine (Autosys) stores production history data (e.g., duration, completion code) in its database. | |
| | **End CERES SFC Data Production** | |
| | **END CERES DATA PROCESSING ACTIVITY** | |
| | | |
| | **SDPF Data Ingest Steps** <br> These steps are executed for each TRMM data ingest from SDPF. | |
| 5000 | Ingest-Distribution Technician: invokes the Ingest Status Monitor tool (GUI display) from the main Ingest GUI screen. | |
| 5010 | Expected Results: The System identifies ongoing ingest requests (stored in Sybase tables) and displays them. | |
| 5020 | SDPF: Application software automatically sets up to transfer Level 0 data to ECS. A Data Availability Notice (DAN) is sent to ECS. | |
| 5030 | Expected Results: The System automatically checks the received DAN and returns a DAA. The INGST CSCI automatically checkpoints request information extracted from the DAN into a Sybase data base. The System automatically coordinates the Level 0 data transfer with the SDPF using ftp services. | |
| 5040 | SDPF: A Data Availability Acknowledgment (DAA) is received. | |
| 5050 | Ingest-Distribution Technician: Reviews Ingest Status Monitor display. The Technician looks for ingest requests that have been queued for more than a few minutes. | |
| 5060 | Expected Results: The System automatically extracts metadata from transferred Level 0 data, checks the metadata (e.g., range checks), and inserts the data and metadata into the Level 0 Data Server component of the Ingest Subsystem. | |

| | | |
|---|---|---|
| 5070 | Expected Results: Request state (active, file transferred, data insertion complete, etc.) is updated in the checkpointed request information. | |
| 5080 | Ingest-Distribution Technician: Reviews the MSS Event Log to visually determine anomalous conditions (e.g., a pattern of metadata check errors). | |
| 5090 | Expected Results: The System automatically logs events by means of the MSS Event Logging capability. "Events" include detection of out-of-range metadata values, incompletely-transferred data files, etc | |
| 5100 | SDPF: Application software receives a Data Delivery Notice (DDN), indicating the status of the Level 0 data ingest. | |
| 5110 | Expected Results: Upon completion of data insertion into the Data Server, status is automatically returned to the data provider (SDPF) by means of the DDN. | |
| 5120 | SDPF: Application software transmits a Data Delivery Acknowledgment (DDA) to acknowledge receipt of the DDN. | |
| 5130 | Expected Results: After receipt of a DDA, on- going ingest request information is deleted. Summary information is retained in the Sybase data base (as Ingest History Log data). | |
| 5140 | Ingest-Distribution Technician: Observes the removal of the completed ingest request from the Status Monitor display. | |
| 5150 | Expected Results: Upon completion successful of data insertion into the Data Server, the SDSRV CI automatically determines the existence of subscriptions on the receipt of the TRMM Level 0 data. A subscription notice is sent to the requesting entity. | |
| 5160 | Ingest-Distribution Technician: Views summary information about completed ingest requests using the GUI Ingest History Log tool. | |
| 5170 | Expected Results: The System provides access to Sybase data base tables containing summary information on completed ingest requests, including completion status, data volume ingested, etc | |
| 5180 | Ingest-Distribution Technician: Generates a summary report on completed ingest requests. | |
| 5190 | Expected Results: The report (in two parts) gives summary statistics (e.g., number of data granules ingested, data volume ingested) and error statistics (e.g., number of errors of a given type encountered) for a specified time range. | |
| | **END SDPF Data Ingest Steps** | |
| | | |
| | **Procedure Wrapup** | |
| 9000 | Ingest/Distribution Tech: Review Ingest History Log and status display | |
| 9010 | Tester: Query data server for existence of the files that were ingested and produced during this procedure. Files should exist. | |
| 9015 | Tester: Print MSS logs and ingest history logs. | |

| 9020 | Tester: Secure the following materials : 1. MSS Log Printout 2. Ingest History Log Printout 3. Results of data server query for existing data files prior to procedure 4. Results of data server query for existing data files after procedure 5. Resource utilization reports | |
|---|---|---|
| **Data Reduction and Analysis Steps:** A. The following materials are required for analysis: 1. System Event Log Printout 2. Ingest History Log Printout 3. Results of data server query for existing data files prior to procedure 4. Results of data server query for existing data files after procedure 5. Resource utilization reports from MSS tools. | | |
| **Signature:** | | **Date:** |
| **Witness Signature:** | | **Date:** |

## 12.5.2  System Response Time Performance Sequence

This sequence verifies the capability of the ECS to respond to nominal and maximum loads of normal operational inputs within a specified response time envelopes. Performance will be measured and statistics recorded using the ECS performance monitoring capabilities and procedures. The tests will verify system performance at both nominal and maximum processing loads with the system configured and operating in a normal in "day-in-the-life" operational mode.

The pull performance goals for product orders are listed in the following table:

### *Table 12-3.  Product Orders*

| PRODUCT | FILES/DAY | AVG. SIZE | MAX. SIZE | TOTAL VOL. |
|---|---|---|---|---|
| FTP PUSH | | | | |
| FTP PULL | | | | |
| HARD MEDIA | | | | |

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**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, DMS, DSS, INS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e., other ECS sites and data sources) needed for a sequence (both real and simulated) are listed:

Simulated science users

**Operator Positions** The operator positions from the <u>ECS Maintenance and Operations Position Descriptions</u> document (607-CD-001-002) needed to support a sequence are listed:

DAAC Computer Operator

**Operational Scenario**: The operations scenarios, taken from the <u>Operations Scenarios for the ECS Project: Release-A</u> document (605-CD-001-003), that were used to develop tests in this sequence of tests are listed:

Network Data Distribution (Pull) Scenario (nominal) (Section 3.11.1)

Network Data Distribution (Push) Scenario (nominal) (Section 3.11.2)

Hard Media Distribution Scenario (Section 3.11.4)

**Test Dependencies**: The following table identifies the test procedure(s) for this sequence of tests that should be run prior to or concurrently with this test procedure.

\* Note: This sequence should be run concurrent with the analogous end-to-end sequence at the other DAACs. Procedure numbers will be entered when available.

| Test Procedure No. | Site/Procedure No. | Comments |
|---|---|---|
| A120620.010$L | A120610.010$L<br>A120610.020$L | Concurrent |
| A120620.020$L | A120610.010$L<br>A120610.020$L | Concurrent |

## 12.5.2.1 Client Server Response Time Performance

| TEST Procedure No.:<br>A120620.010$L | Date Executed: | Test Conductor: |
|---|---|---|

| Title: | Client Server Response Time Performance |
|---|---|

| Objective: | This procedure tests the capabilities of the ECS LaRC DAAC to perform client server transactions within  response time performance limits.  The performance requirements for processing speed are derived from the SDPS Requirements Specification for the ECS, Appendix C. This procedure is to be executed as part of procedures A120610.010$L and A120610.020$L. |
|---|---|

| Requirements | Acceptance Criteria |
|---|---|
| DADS3135#A | This requirement is verified through test.<br><br>The DADS shall have the capability to support the transaction rate as specified in Table 12-4.<br><br>The system  must be able to handle directory guide and inventory checks, data requests, browse requests, and product orders and respond to each within the required response times.  A copy of Table 12-4 follows the data reduction and analysis portion of this procedure. The system log  and Loadrunner log files and performance reports must show that all requests were handled within the required response times. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| LR_userload_A120620.010$L | | LR_userload_A120620.010$L | LoadRunner Script which performs data server user requests continuously at the nominal estimated request rate. | |

| Step No. | Input Action / Expected Results | Pass / Fail / Comments |
|---|---|---|
| | **Step-By-Step Procedures** | |
| 10 | Computer Operator: Monitor resource utilization for all DMGHW and Data Server HWCIs. Configure to plot CPU, cache, and disk utilization and network throughput capacity utilization. | |
| 15 | Expected Results: MSS tools are configured to monitor resource usage. | |
| 20 | Tester: Invoke LoadRunner background user script LR_userload_A120610.010. This script will load the system with a nominal rate of service requests throughout the course of this procedure. | |
| 25 | Expected Results: The system responds to user requests within the performance parameters specified. | |
| 30 | Tester: secure the following materials :<br>　　1. System Event Log Printout<br>　　2. Resource utilization<br>　　3. LoadRunner Log Files | |
| 40 | Tester: Perform data analysis steps. | |

**Data Reduction and Analysis Steps:**

A. The following materials are required for analysis:
　　1. System Event Log Printout
　　2. Resource utilization plots from MSS tools
　　3. LoadRunner Log Files

B. DADS3135#A - From the LoadRunner reports, determine the response time for each user service. Plot results for data requests, browse requests, and product. Confirm that all requests were serviced within required response times for each type of request as specified in the table following this procedure.

| **Signature:** | **Date:** |
|---|---|
| **Witness Signature:** | **Date:** |

The following table has been extracted from the F&PRS:

*Table 12-4. IMS User Load and Concurrent Session Characteristics*

| Session Category | Number of IMS Operations per Hour | Specific Operation | Response Time Requirement* | Response Time Design Goal* |
|---|---|---|---|---|
| Log-on and Authorization | 100 | Account confirmation and authorization | 13 sec | 6 sec |
| Directory Search | 80 | Search by single keyword attribute | 8 sec | 2 sec |
| | | Search by multiple keyword and time or space range check | 13 sec | 7 sec |
| Guide Search | 40 | Search for document by keyword | 8 sec | 5 sec |
| Inventory Search | 120 | Search one instrument by multiple keyword attribute w/time or space range check (one DAAC) | 8 sec | 2 sec |
| | | Search multiple instruments by multiple keyword attributed w/time or space range check (one DAAC) | 18 sec | 7 sec |
| | | Multiple DAAC inventory search by keyword attributes and time and/or space range check | 58 sec | 11 sec |
| Status Check (account or request) | 60 | Status of pending order or Data Acquisition Request | 13 sec | 10 sec |
| | | Account status retrieval | 13 sec | 6 sec |
| Browse *(for data selection)* | 50 | Retrieve and begin to display standard pre-computed browse product | 58 sec | |
| Document Search | 10 | Search 1000 document pages by keyword | 3 sec | 3 sec |
| Ordering Services | 25 | Local DAAC order submission and confirmation | 13 sec | 12 sec |
| | | Remote DAAC order submission and confirmation | 38 sec | 30 sec |
| | | Order cost estimate | 13 sec | 12 sec |

*(from initiation of query to start of display, exclusive of user environment and network delay)

### 12.5.2.2 Data Access Retrieval and Transmission Performance

| TEST Procedure No.:<br>A120620.020$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | Data Access Retrieval and Transmission Performance | |
| **Objective:** | This procedure verifies the capabilities of the ECS LaRC DAAC to perform key data access, transmission, and retrieval functions over communications networks at required rates and within required response times. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS2530#A | This requirement is verified through test.<br><br>The DADS shall be capable of distributing by physical media to meet user demand.<br><br>The system must be capable of fulfilling user's requests for data on physical media including CDROM, 6250 tape, and 8mm tape. Media production must be able to handle errors encountered with the devices or media and must give the operators control over media handling. Shipping letters must be generated for all media products generated. Table 12-3 summarizes the product order performance goals. |
| DADS2770#A | This requirement is verified through test.<br><br>Upon receipt and approval of a request, the designated DADS shall make stored data products available for delivery to the requester within 24 hours for data distributed on physical media.<br><br>The system must be able to fulfill all data requests for physical media products within 24 hours (ready to ship). Data retrieval and packaging must be able to occur concurrent with normal processing and be completed during the current production day. The daily hard media production volume to be support is listed in Table 12-4 which summarizes the product order performance goals.. This procedure must be executed concurrently with A120610.010. |
| DADS3100#A | This requirement is verified through test.<br><br>Each DADS shall be capable of transmitting data over communications network in support of data production requests at the data rate specified in Appendix C and in support of data distribution requests at a rate equivalent to daily product volume (L1-L4).<br><br>Release A Data Server supports the data production flows at LaRC for CERES and the following network distribution flows, as derived from the L1-L4 volume in the August, 1995 Technical Baseline (Release A procurement baseline): @ LaRC 13.4 GB/day to users.<br><br>The system must be able to fulfill all data requests for electronic data distribution at the rates specified. Order processing, data retrieval and transmission must be able to occur concurrent with normal processing and at required rates. Table 12-3 summarizes the product order performance goals. A LoadRunner script orders products at the nominal required rates and volumes. The system event logs must show responses within required times. This procedure must be executed concurrently with A120610.010$L and A120610.020$L |

| DADS3125#A | This requirement is verified through test. |
| | Each DADS shall make archive data, associated with a pre-defined ECS standard format, that is requested for communications network delivery, available to the network in that ECS standard format within an average of 2 minutes after the receipt of a request for that data |
| | A data file requested for retrieval and transfer in ECS standard format must be staged and available within an average two minutes of receiving that request.  This capability is verified using a Loadrunner script simulating user data requests.  The processing logs must show an average of two minutes time between receipt of the request and availability of the data. **(According to information received by the ECS Performance Tiger Team, NASA is currently reviewing this requirement.  Not determined whether the response time should be volume dependent.  Clarification of this requirement is expected prior to testing.)** |
| DADS3126#A | This requirement is verified through test. |
| | Each DADS shall make archive data, associated with a pre-defined ECS standard format, that is requested for communications network delivery available to the network in a different ECS standard format within an average of 5 minutes after the request for that data. |
| | A data file requested for retrieval and transfer in Non-ECS standard format must be staged and available within an average of five minutes of receiving that request.  **(Awaiting confirmation that this requirement is available in Release A) (According to information received by the ECS Performance Tiger Team, NASA is currently reviewing this requirement.  Not determined whether the response time should be volume dependent.  Clarification of this requirement is expected prior to testing.)** |
| DADS3135#A | This requirement is verified through test. |
| | The DADS shall have the capability to support the transaction rate as specified in Table 12-4. |
| | The system  must be able to handle directory guide and inventory checks, data requests, browse requests, and product orders and respond to each within the required response times.  A copy of Table 12-4 follows the data reduction and analysis portion of this procedure.  The system log  and Loadrunner log files and performance reports must show that all requests were handled within the required response times.  Table 12-3 summarizes the product order performance goals. |

**Test Inputs:**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| LR_elecreq_A120620.020 | | LR_elecreq_A120620.020 | LoadRunner Script which performs electronic data product requests (pull types) continuously at the nominal estimated request rate. | |

| | | | | |
|---|---|---|---|---|
| LR_pushreq_A1206 20.020 | | LR_pushreq_A1206 20.020 | LoadRunner Script which performs electronic data product requests (push types) continuously at the nominal estimated request rate. | |
| LR_hardreq_A12062 0.020 | | LR_hardreq_A12062 0.020 | LoadRunner Script which performs hard media data product requests continuously at the nominal estimated request rate. | |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| 10 | Computer Operator: Configure HP Openview to monitor resource utilization for all HWCIs and all network traffic. Configure to plot CPU, cache, and disk utilization and network throughput capacity utilization. | |
| 20 | Tester: Invoke LoadRunner background user script LR_elecreq_A120620.020. This script performs electronic data product requests (pull types) continuously at the nominal estimated request rate. | |
| 30 | Tester: Invoke LoadRunner background user script LR_pushreq_A120620.020. This script performs electronic data product requests (push types) continuously at the nominal estimated request rate. | |
| 40 | Tester: Invoke LoadRunner background user script LR_hardreq_A120620.020. This script performs hard media data product requests continuously at the nominal estimated request rate. | |
| 50 | Ingest/Distribution Tech: Monitor the status display, note receipt and progress of requests as they are processed. | |
| 60 | Expected Results: As requests are received or hard media processing is performed, the system will display status and perform the necessary processing. The following three groups of steps correspond to the receipt of the three types of product request (electronic pull, electronic push, or hard media). Note that the system will be performing concurrent processing of requests and that actual results observed will be interleaved between the three series of steps. | |
| | **Electronic Pull Request Procedures** | |
| 70 | LR_elecreq_A120620.020: A user establishes a client session to a Data Server and creates a working collection of data. | |
| 80 | Expected Results: The Data Server assigns a session ID and logs (via MSS Logging Services) the initiation of the session. The Data Server logs and queues the search request sent by the user to create a working collection and searches the Metadata Database in accordance with the user's indicated search attributes when the request is reached in the request queue. Identified granules are returned to the user's working collection. | |
| 90 | Ingest/Distribution Tech: Tracks progress of request and review any errors recorded by using either the Other Screens option and selecting Logs & Reports (MSS) from DSS System Management main menu or views actual request status's via the Distribution Management Component's Requests Screen. | |
| 100 | LR_elecreq_A120620.020: The user refines the contents of the working collection to specific granules of high interest. The user invokes an acquire (via ftp pull) service to obtain the high interest granules. | |

| | | |
|---|---|---|
| 110 | Expected Results: The Data Server logs (via MSS Logging Services) and queues subsequent search requests to identify high interest granules and searches the Metadata Database in accordance with the user's refined search attributes when the request is reached in the request queue.  The user's working collection is updated with the results of each subsequent search.  Distribution Management logs (via MSS Logging Services) the Acquire Via ftp Pull Request and sends a Data Retrieval Request to Storage Management listing the granules of high interest to be retrieved and placed on the Pull Volume. | |
| 120 | Ingest/Distribution Tech:   can review progress for any request via either the  Other Screens option and selecting  Logs & Reports (MSS) from DSS System Management main menu or via the Storage Management Component's Logs & Reports (MSS) sub-menu available on the  Other Screens pull down menu. | |
| 130 | Expected Results: Storage management logs (via MSS Logging Services) and queues the Data Retrieval Request. When the request is reached in the request queue, Storage Management requests the appropriate granules be retrieved from the archive via the Archive Management OTS Product. The granules are placed on the Working Storage and transferred to the Pull Volume, the reference count for each file in those granules is incremented and a Data Retrieval Request completed message is logged and sent to Distribution Management . | |
| 140 | Ingest/Distribution Tech:   The operator may view Pull Area Utilization data via the Storage Management Component's Pull Area Utilization  Screen. | |
| 150 | Expected Results: Distribution Management extracts the file names and path names associated with the high interest granules.  A Retrieval Complete Notification is created which includes file and path names.  This notification is sent to the requesting user's client or via email to the user if no client is active. | |
| 160 | LR_elecreq_A120620.020:  The user retrieves the requested data from the DAAC's pull volume. | |
| 170 | Expected Results: CSS Subsystem detects and logs (via MSS Logging Services) that an authorized user has accessed specific files on the pull volume.  CSS provides a Pull Volume Access Notification to Storage Management which enumerates the path names and files retrieved by an associated user ID. | |
| 180 | Ingest/Distribution Tech:   The operator can verify request completion via either the  Other Screens option and selecting Logs & Reports (MSS) from DSS System Management main menu, the Storage Management Component's Logs & Reports (MSS) sub-menu available on the  Other Screens pull down menu, or the Distribution Management Component's Request Screen. | |
| 190 | Expected Results: Storage Management receives and logs (via MSS Logging Services) the Pull Volume Access Notification. Storage Management parses the notification and determines which files were retrieved by the user.  The reference count for those files is decremented. | |
| | **Electronic Push Request Procedures** | |
| 200 | LR_pushreq_A120620.020: A user establishes a client session to a Data Server and creates a working collection of data. | |

| | | |
|---|---|---|
| 210 | Expected Results: The Data Server assigns a session ID and logs (via MSS Logging Services) the initiation of the session. The Data Server logs and queues the search request sent by the user to create a working collection and searches the Metadata Database in accordance with the user's indicated search attributes when the request is reached in the request queue. Identified granules are returned to the user's working collection. | |
| 220 | Ingest/Distribution Tech:  Tracks progress of request and review any errors recorded by using either the  Other Screens option and selecting  Logs & Reports (MSS) from DSS System Management main menu or views actual request status's via the Distribution Management Component's Requests  Screen. | |
| 230 | LR_pushreq_A120620.020: The user refines the contents of the working collection to specific granules of high interest. The user invokes an acquire (via push) service to obtain the high interest granules. | |
| 240 | Expected Results: The Data Server logs (via MSS Logging Services) and queues subsequent search requests to identify high interest granules and searches the Metadata Database in accordance with the user's refined search attributes when the request is reached in the request queue.  The user's working collection is updated with the results of each subsequent search.  Distribution Management logs (via MSS Logging Services) the Acquire Via Push Request and sends a Data Retrieval Request to Storage Management listing the granules of high interest to be retrieved and placed on the Pull Volume. | |
| 250 | Ingest/Distribution Tech:   can review progress for any request via either the  Other Screens option and selecting  Logs & Reports (MSS) from DSS System Management main menu or via the Storage Management Component's Logs & Reports (MSS) sub-menu available on the  Other Screens pull down menu. | |
| 260 | Expected Results: Storage management logs (via MSS Logging Services) and queues the Data Retrieval Request. When the request is reached in the request queue, Storage Management requests the appropriate granules be retrieved from the archive via the Archive Management OTS Product. The granules are placed on the Working Storage and transferred to the Push Volume, the reference count for each file in those granules is incremented and a Data Retrieval Request completed message is logged and sent to Distribution Management . | |
| 270 | Ingest/Distribution Tech:  The DDIST Technician may further examine the status of requests pressing the  Filter button to reach the  Filter Requests Screen from the Distribution Management Requests Screen or by using the Request Screen in DSS System Management. | |
| 280 | Expected Results Distribution Management provides login, system, and security information received in the Acquire via ftp Push, to Storage Management.  Storage Management utilizes CSS Services to push the high interest granules to the user's system. Distribution Management logs (via MSS Logging Services) a distribution complete message and sends a distribution completed notification to the client or Emails the user if no client is active. | |

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| | | **Hard Media Request Procedures** | |
|---|---|---|---|
| 290 | | LR_hardreq_A120620.020: A user establishes a client session to a Data Server and creates a working collection of data. | |
| 300 | | Expected Results: The Data Server assigns a session ID and logs (via MSS Logging Services) the initiation of the session. The Data Server logs and queues the search request sent by the user to create a working collection and searches the Metadata Database in accordance with the user's indicated search attributes when the request is reached in the request queue. Identified granules are returned to the user's working collection. | |
| 310 | | Ingest/Distribution Tech:  Tracks progress of request and review any errors recorded by using either the  Other Screens option and selecting  Logs & Reports (MSS) from DSS System Management main menu or views actual request status's via the Distribution Management Component's Requests  Screen. | |
| 320 | | LR_hardreq_A120620.020: The user refines the contents of the working collection to specific granules of high interest. The user invokes an acquire (via push) service to obtain the high interest granules. | |
| 330 | | Expected Results: The Data Server logs (via MSS Logging Services) and queues subsequent search requests to identify high interest granules and searches the Metadata Database in accordance with the user's refined search attributes when the request is reached in the request queue.  The user's working collection is updated with the results of each subsequent search.  Distribution Management logs (via MSS Logging Services) the Acquire Via Hard Media Request and sends a Data Retrieval Request to Storage Management listing the granules of high interest to be retrieved. | |
| 340 | | Ingest/Distribution Tech:  The DDIST Technician may check request  status at any time using the DSS-OSM   Request Screen. | |
| 350 | | Expected Results:  Storage Management logs (via MSS Logging Services) and queues the Data Retrieval Request. When the request is reached in the request queue, Storage Management requests the appropriate granules be retrieved from the archive via the Archive Management OTS Product. The granules are placed on the Media Distribution Volume and a Data Retrieval Request completed message is logged and sent to Distribution Management. | |
| 360 | | Ingest/Distribution Tech:  The DDIST Technician may further examine the status of requests pressing the  Filter button to reach the Filter Requests Screen from the Distribution Management  Requests Screen or by using the  Request Screen in DSS System Management. | |
| 370 | | Expected Results:  Distribution Management  provides format parameters received in the acquire via physical media request, to Storage Management. Storage Management generates the physical media volume requested by the user. Distribution Management generates volume labels, mailing labels, and a packing list. Distribution Management logs (via MSS Logging Services) the completion of media generation and alerts the Data Distribution Technician. | |

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| | | |
|---|---|---|
| 380 | Ingest/Distribution Tech:  The DDIST Technician affixes the volume and mailing labels, packages the physical media volume along with the packing list, and ships the package. The operator then updates the status of the Distribution Management Request to "shipped" from the Distribution Management Requests Screen. | |
| 390 | Expected Results:  Distribution Management receives and logs (via MSS Logging Services) the state change on the Distribution Management Request and sends an E- mail message to the requester stating the requested medium has been shipped. | |

**Data Reduction and Analysis Steps:**

A. The following materials should be secured for analysis at the close of the procedure:
    1. System Event Log Printout
    2. Ingest History Log Printout
    3. Results of data server query for existing data files prior to procedure
    4. Results of data server query for existing data files after procedure
    5. Resource utilization plots from HP Openview
    6. LoadRunner Log Files
B.  DADS3125#A: From the System Event Logs and Loadrunner determine the amount of time it took to respond to user data requests.  Confirm that it took less than two minutes from receipt of the requests to staging of the data.
C. DADS3135#A: From the system event logs, determine the response time for each user service request (time request completed minus time request received).  Plot results for data requests, browse requests, and product orders versus wall clock time.  Confirm that all requests were serviced within required response times for each type of request as specified in Table xxx.

| | | |
|---|---|---|
| **Signature:** | | **Date:** |
| **Witness Signature:** | | **Date:** |

## 12.5.3  ECS Sizing, Evolution, and Growth Sequence

This sequence verifies through analysis the capability of the ECS to accommodate an expansion of PGS capabilities by a factor of 10 without major design changes and to provide four times the normal processing capability to process all relevant EOS science data. Analysis is also performed to verify the that the ECS has adequate growth and evolution capabilities.

There are no step-by-step procedures associated with these analysis in this procedure. Papers detailing the analysis approach and results will be produced. This sequence will not be performed at the LaRC ECS DAAC. The papers will be produced at the ECS Development Facility and will address the ECS as a whole.

**Configuration:** No ECS hardware or software is needed to perform this sequence of tests.

**External Interfaces**: There are no external interfaces (i.e. other ECS sites and data sources) needed for this sequence.

**Operator Positions**: There are no operator positions needed for this sequence.

**Operational Scenario**: There are no operations scenarios taken from the Operations Scenarios for the ECS Project: Release-A, used during this sequence of tests

**Test Dependencies**: There are no test dependencies needed for this sequence of tests.

## 12.5.3.1 Accommodation of ECS Expansion Analysis

| TEST Procedure No.: A120630.010 | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** Accommodation of ECS Expansion Analysis | | |
| **Objective:** These analyses verify the capabilities of the ECS to accommodate an expansion of PDPS capabilities without major design changes and to provide four times the nominal processing capabilities for all EOS science data. | | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS1640#A | This requirement is verified through test. |
| | The DADS shall support the number of files derivable from Appendix C, with the ability to expand to match growth. |
| | Number of files for Release A archives are derived from the capability to accommodate the Release A supported missions until the operational turnover of Release B (Through 3 quarter of 98). The number of files at GSFC is sized to support the TSDIS data (along with required ancillary) and V0 migration data while LaRC archive is sized to support the CERES (TRMM) data (along with required ancillary) and V0 migration data. Total accumulated number of files for Release A, derived from the August, 1995 Technical Baseline (Release A procurement baseline), is 127K @ GSFC and 70K @ LaRC. No Release A archive capacity is provided at EDC. The number of V0 migration files was derived by assuming an average size of 50 MB per file. The design of the Release A DAAC is analyzed to verify ability to meet the growth requirements. |
| | Only the ability to handle growth is verified in this procedure. |
| DADS3090#A | This requirement is verified through analysis. |
| | Each DADS shall be capable of 200% expansion in throughput and archive capacity without architecture or design change. This expansion capacity shall apply to the total of the at-launch requirement plus the yearly growth requirement specified in Appendix C. |
| | Analysis of theoretical throughput capacity of the current configuration and determination of increases in throughput which may be realized without design change is performed to determine the theoretical throughput performance limits. Analysis of the results of performance testing in the End to End Performance test sequences must validate the performance model. To determine the archive storage capacity, the theoretical limits for both data and metadata are determined through analysis of current data store capacities and expansion limitations. |

| | |
|---|---|
| EOSD0540#A | This requirement is verified through analysis.<br><br>ECS elements shall be expandable to facilitate updates in instrument data products and algorithms, particularly with respect to storage capacity and processing capability.<br><br>For compliance refer to Segment Specification 305/DV2, System Design Spec (SDS) 207/SE1. Verify that the documents have been approved by ESDIS. |
| EOSD0545#A | This requirement is verified through analysis.<br><br>ECS shall be able to accommodate growth (e.g., capacity) in all of its functions as well as the addition of new functions.<br><br>For compliance refer to Segment Specification 305/DV2, System Design Spec (SDS) 207/SE1. Verify that the documents have been approved by ESDIS. |
| EOSD5070#A | This requirement is verified through analysis.<br>ECS shall enable expansion to GByte networks including the ability to provide increased volume of data distribution/access..<br>Scenarios for expanding to Gbyte networks are developed and analyzed for feasibility.  All network components including DAAC architectures, inter-DAAC networks, and user access services must support the expansion capabilities. |
| EOSD5110#A | This requirement is verified through analysis.<br>ECS shall enable the separate use of data management, data processing, or data archive and distribution software components by a GCDIS data center.  The GCDIS data centers will have full responsibility for integration of those components within their environment.  Interfaces between the components must<br>be developed to serve the mission of EOSDIS, but be made available for a GCDIS data center.<br>DID 305/DV2, DID 313/DV3, and DID 207/SE1 will be reviewed to determine compliance. |
| ESN-1207#A | This requirement is verified through analysis.<br><br>The ESN capacity and performance shall be capable of expansion to be consistent with the specified capacity and performance growth requirements of the ECS elements and functions.<br><br>The potential capacity and performance limits of the ESN are evaluated and compared to the growth requirements of the ECS. |

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|---|---|
| IMS-1800#A | This requirement is verified through analysis.<br><br>The IMS design and implementation shall have the flexibility to accommodate 100% expansion in processing and storage capacity without major changes to the IMS hardware and software design. This expansion capacity shall apply to the total at-launch requirement plus the yearly product growth requirement specified in Appendix C.<br><br>The design of the IMS is analyzed to determine whether changes are required to accommodate expansion. A model of the capacity limits is developed to determine whether the design is sufficient to handle the growth requirements as specified in Appendix C. |
| PGS-1270#A | This requirement is verified through analysis.<br><br>The PGS design and implementation shall have the flexibility to accommodate PGS expansion up to a factor of 3 in the processing capacity with no changes to the processing design, and up to a factor of 10 without major changes to the processing design. Such expansion in capacity or capability shall be transparent to existing algorithms or product specifications. This requirement shall apply to the system at all phases of contract performance, including the final system, as well as the at-launch system.<br><br>The design of the PGS is analyzed to determine whether changes are required to accommodate expansion. A model of the capacity limits is developed to determine whether the design is sufficient to handle the requirement. Any changes required for expansion are analyzed to determine the impact on existing algorithms and product specifications. |
| PGS-1300#A | This requirement is verified through analysis.<br><br>Each PGS shall provide a processing capacity four times the size necessary to process all EOS science data for which it is responsible, except for the Data Assimilation Office requirements shown in Appendix C, Table C-5a. It shall be possible to effectively utilize the entire reprocessing capacity at each site on computers with similar architectural design (e.g., parallel processors), for a single algorithm or any mix of algorithms normally run at that site. The four times processing capacity accounts for:<br>a. 1 times to allow for normal processing demands<br>b. 2 times to allow for reprocessing demands<br>c. 1 times to allow for algorithm integration and test demands, production of prototype products, ad hoc processing for "dynamic browse" or new search and access techniques developed by science users, and additional loads due to spacecraft overlap.<br><br>Release A Processing capacity provided is equal to 1.2X normal processing for CERES on TRMM and .3X normal processing for AM-1 instruments. This will be provided only at the GSFC, LaRC and EDC DAACs. Totals provided as derived from the August, 1995 Technical Baseline (Release A procurement baseline) in MFLOPS is @ LaRC: 7125; @ GSFC: 3467, and @ EDC: 1086. These capacities include the 25% efficiency required by PGS-1301#A<br><br>The capacity of the site's PGS resources are determined through analysis of the hardware configuration and system architecture. The capacity requirements for this site are derived form the technical baseline. |

| | |
|---|---|
| PGS-1301#A | This requirement is verified through analysis. |
| | The effective CPU processing rates used for sizing purposes in PGS-1300 shall not be greater than 25% of peak-related CPU capacity. |
| | These rates are applied to the analysis of PGS-1300. |
| PGS-1310#A | This requirement is verified through analysis. |
| | The processing capacity necessary to process all EOS science data for which each PGS is responsible shall be based on the data volumes and instrument processing load requirements (MFLOPS) assigned to this DAAC. |
| | Instrument Assignment for Release A is for LaRC : 1.2X CERES on TRMM and .3X (MISR, MOPITT and CERES on AM-1); GSFC: .3X MODIS; and EDC: .3X MODIS and ASTER). The assigned capacities are used in the analysis of PGS-1300. |
| SDPS0170#A | This requirement is verified through analysis |
| | The SDPS shall accommodate growth in the instrument processing load and storage capacity without changes to the SDPS architecture or design. |
| | The design of the SDPS is analyzed to determine whether changes are required to accommodate expansion. A model of the capacity limits is developed to determine whether the design is sufficient to handle the requirement |
| **Test Inputs:** | Segment Specification 305/DV2, System Design Spec (SDS) 207/SE1, DID 305/DV2, DID 313/DV3, and DID 207/SE1. |
| **Note:** | The analysis of ECS growth as defined in the above requirements will be presented in a technical paper. |
| | The objectives of this paper will be to: |
| | 1. Specify the growth in capabilities, capacity, and throughput as defined in the above requirements and clarification text |
| | 2. Identify the ECS design components which are subject to the growth requirements. |
| | 3. For each component, analyze the maximum growth potential based on the ECS design. |
| | 4. Analyze the overall design to locate limitations or "bottlenecks" which may impact the overall growth potential. |
| | 5. Apply the results of the above analysis to each growth requirement. |

| Signature: | Date: |
|---|---|
| Witness Signature: | Date: |

## 12.5.3.2 ECS Growth and Evolution Adequacy Analyses

| TEST Procedure No.: A120630.020 | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** ECS Growth and Evolution Adequacy Analyses | | |
| **Objective:** These analyses verify the capabilities of the ECS to evolve to meet future EOS processing requirements. | | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS0680#A | This requirement is verified through analysis. Each DADS shall have the capability to support all required requests and shall grow as demand expands. |
| DADS0780#A | This requirement is verified through analysis. Each DADS shall have the capability to incorporate additional ingest and data distribution formats and conversion software. The design of the ECS is analyzed to determine whether new data formats and data conversion software can be inserted into the ECS with no major changes the basic architecture. |
| DADS1700#A | This requirement is verified through analysis. Where appropriate, the DADS shall comply with the evolving guidelines and standards emerging from the IEEE-CS MSS Reference Model. The design of the ECS is evaluated against the evolving guidelines and standards for compliance. |
| DADS1720#A | This requirement is verified through analysis. The FSMS at each DADS shall be based on published and open architectures which fully describe the physical organization and structures of files. The FSMS is evaluated for compliance to open architectures. |
| DADS1730#A | This requirement is verified through analysis. The DADS shall be developed using file storage management systems that have configuration-controlled application programming interfaces (APIs). The use of APIs in the ECS is analyzed and evaluated. |

| EOSD5000#A | This requirement is verified through analysis. |
|------------|------------------------------------------------|
| | ECS shall enable the addition of other data providers, e.g. DAACs, SCFs, ADCs, ODCs, which may:<br>- provide heterogeneous services, i.e. services in support of EOS which<br> may be less than or different than ECS services.<br>- be connected with varying topologies<br>- have variable levels of reliability or operational availability.<br><br>The ability of the ECS to be interoperable with the V0 DAACs and the ADCs is used as a basis for evaluating the ECS' capability to add additional, new data providers. The test procedures A120540.010 and A120540.020 must be successfully executed to verify this basic capability. The ECS design components relating to interoperability is analyzed and approach to achieving interoperability is evaluated for ability to add new data providers which may have lesser capabilities. |
| EOSD5010#A | This requirement is verified through analysis.<br><br>ECS shall enable extended provider support, i.e. client access of data and services at SCFs and DAACs, as authorized, without distinction to the client. |
| EOSD5020#A | This requirement is verified through analysis.<br><br>ECS software, hardware, and interfaces shall enable transparent portability across heterogeneous site architectures, i.e. performing the same function at different ECS sites that may have different hardware implementations.<br><br>The capability of the ECS to be installed and operated at each DAAC is evaluated. |
| EOSD5030#A | This requirement is verified through analysis.<br><br>ECS shall enable the addition of information search and retrieval services, e.g. WAIS, WWW.<br><br>The data storage and access strategies are analyzed and evaluated for adherence to open system standards which will enable the  addition of services. |
| EOSD5040#A | This requirement is verified through analysis.<br><br>ECS shall enable the combination of services from ECS and other data providers in arbitrary, i.e. non-predefined, ways as needed by users to conduct EOS science. |
| EOSD5110#A | This requirement is verified through analysis.<br><br>ECS shall enable the separate use of data management, data processing, or data archive and distribution software components by a GCDIS data center. The GCDIS data centers will have full responsibility for integration of those components within their environment. Interfaces between the components must be developed to serve the mission of EOSDIS, but be made available for a GCDIS data center. |

| EOSD5200#A | This requirement is verified through analysis.<br><br>ECS shall enable the addition of the following as required for discipline specific user support: unique fields to metadata, unique products for browse, and unique documents for data products guides. These activities shall not require software changes to ECS. |
|---|---|
| EOSD5250#A | This requirement is verified through analysis.<br><br>ECS shall enable access to configuration controlled applications programming interfaces that permit development of DAAC-unique value added services and products where DAAC-unique value added services may consist of one or more of the following types of developments:<br>a. Visualization utilities and products<br>b. Data sets and inter-data set usability utilities and products<br>c. Data analysis utilities<br>d. Special subsetting capabilities (e.g. dynamic)<br>e. On-line analysis functions<br>f. New search and access techniques<br>g. Data acquisition planning and utilities<br>h. Experimental QA techniques<br>i. Non-digital data utilities and products<br>j. System Management Functions |
| ESN-0240#A | This requirement is verified through analysis.<br><br>The ESN shall be extensible in its design to provide capability for growth and enhancement. |
| IMS-0355#A | This requirement is verified through analysis.<br><br>The metadata shall be expandable to include additional attributes which are identified during the mission and deemed useful for data search. |
| PGS-1400#A | This requirement is verified through analysis.<br><br>The PGS shall be developed with configuration-controlled application programming interfaces (APIs) that will be capable of supporting development and integration of new algorithms developed at each DAAC to support DAAC value-added production. |
| **Note:** | The analysis of ECS evolvability as defined in the above requirements will be presented in a technical paper.<br><br>The objectives of this paper will be to:<br><br>1. Define, based on the requirements, the general and specific goals relating to evolvability.<br><br>2. Define, based on identified goals, the characteristics, standards, and technical capabilities which must be embodied in the ECS to enable evolvability.<br><br>3. Analyze the architecture of the ECS and the Release A as-built design to evaluate the ECS's capability to meet the defined evolvability goals.<br><br>4. Provide a matrix linking the requirements, evolvability goals, and ECS design components which implement those goals. |
| **Signature:** | **Date:** |
| **Witness Signature:** | **Date:** |

## 12.5.4  ECS Testability and Overall Capabilities Sequence

This sequence verifies through test and analysis the ECS's capability to support testing in all phases in the development and mission life cycle and verifies system requirements for broad overall functional capabilities.

**Configuration:** The subsystems needed to perform this sequence of tests are as follows: CLS, CSS/MSS, DMS, DSS, INS, ISS, & PLS. Refer to Appendix D for additional detail.

**External Interfaces**: The external interfaces (i.e. other ECS sites and data sources) needed for a sequence (both real and simulated) are listed:

EDOS - Simulated

LaRC V0 DAAC

GSFC ECS DAAC

SMC

Simulated science users

**Operator Positions**: The operator positions from the ECS Maintenance and Operations Position Descriptions document (607-CD-001-002) needed to support a sequence are listed:

Production Planner

Resource Manager

Archive Manager

Ingest-Distribution Technician

**Operational Scenario**: The operations scenarios, taken from the Operations Scenarios for the ECS Project: Release-A document (605-CD-001-003), that were used to develop tests in this sequence of tests are listed:

TRMM Ancillary Data Ingest Scenario (Section 3.9.2)

**Test Dependencies**: There are no test dependencies needed for this sequence of tests. However, test procedures A120610.010$L and A120210.010$L are used in procedure A120640.010$L.

## 2.5.4.1  Test Support in an Operational DAAC

| TEST Procedure No.:<br>A120640.010$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** Test Support in an Operational DAAC | | |
| **Objective:** The Test Support in an Operational DAAC test verifies the site's DAAC capabilities to support end-to-end test activities including system testing of the interfaces between ECS and TRMM.  These activities must be accommodated without impacting DAAC operations. | | |

| Requirements | Acceptance Criteria | |
|---|---|---|
| EOSD0760#A | This requirement is verified through demonstration.<br><br>Each ECS Element shall support end-to-end EOS system testing and fault isolation.<br><br>A test of an End to End data flow is performed concurrently with the execution of test procedure A120610.010$L simulating a test during a normal operational day.  The execution of test procedure A120610.010$L must not be prevented by the test. | |
| EOSD0800#A | This requirement is verified through demonstration.<br><br>Each ECS element shall be capable of supporting end-to-end test and verification activities of the EOS program including during the pre-launch, spacecraft verification, and instrument verification phases.<br><br>A test of an End to End data flow is performed concurrently with the execution of test procedure A120610.010$L simulating a test during a normal operational day.  The execution of test procedure A120610.010$L must not be prevented by the test | |
| **Test Inputs:** See Test Procedures A120610.010$L and A120210.010$L | | |

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| None. | | | | |
| | | | | |

| | Step-By-Step Procedures | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| | These procedures currently assume that the ECS is required to support test activities concurrent with normal operations.  It is also assumed that the system can be configured to separate the test environment from the operational environment and that operational data will not be corrupted by the execution of a test at the DAAC. | |
| 10 | Tester: Configure a test environment for the performance of end to end testing. | |
| 100 | Tester : Begin execution of test procedure A120610.010$L | |
| 110 | Tester: Concurrent with step 320 of test procedure A120610.010$L, begin execution of test procedure A120210.010$L | |
| 120 | Expected Results: Test procedure A120210.010$L will not interrupt normal operations. | |
| | | |
| **Data Reduction and Analysis Steps:** | | |
| **Witness Signature:** | | **Date:** |
| **Tester Signature:** | | **Date:** |

## 12.5.4.2  Support of Life Cycle Testing

| **TEST Procedure No.:** A120640.020$L | **Date Executed:** | **Test Conductor:** |
|---|---|---|
| **Title:** | Support of Life Cycle Testing | |
| **Objective:** | The Support of Life Cycle Testing procedure consolidates requirements concerning the support of test activities which are out of the scope of normal ECS development testing. No verification of these requirements will be performed during acceptance testing. | |

| **Requirements** | **Acceptance Criteria** |
|---|---|
| EOSD0740#A | Each ECS element shall provide a set of real or simulated functional capabilities for use in the following types of test: a. Subsystem (components of an ECS element) b. Element (fully integrated element) c. ECS System (Integration of ECS elements) |
| EOSD0750#A | Each ECS element shall provide a set of real or simulated functions which interfaces with both its ECS internal and external entities for use in the following types of test: a. Subsystem (components of an ECS element) b. Element (fully integrated element) c. EOSDIS System (Integration of EOSDIS elements) |

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| PGS-0605#A | The PGS shall process pre-launch test data and provide test data product samples for user verification.<br><br>No acceptance testing action required. |
| SDPS0140#A | The SDPS shall support element, system, and subsystem test activities throughout the development phase.<br><br>No acceptance testing action required. |
| TRMM8010#A | TRMM shall manage, and ESDIS shall support, the TRMM end-to-end system testing of the interfaces between ECS and TRMM.<br><br>No acceptance testing action required. |
| TRMM8020#A | ESDIS shall support testing, fault isolation, verification, and validation of the interfaces with the TRMM end-to-end ground system.<br><br>No acceptance testing action required. |
| TRMM8030#A | The TRMM I&T Program shall develop an overall ground segment integration and test plans and procedures.<br><br>No acceptance testing action required. |
| TRMM8031#A | ESDIS shall develop test plans and procedures in support of the development, verification, and testing of the interfaces with the TRMM ground system.<br><br>No acceptance testing action required. |
| TRMM8040#A | ESDIS shall support TRMM development of test plans and procedures in support of the development, verification, and testing of the interfaces between the TRMM ground system and ECS. |
| TRMM8050#A | The TSDIS elements shall support integration and test activities defined in the TRMM overall ground segment integration and test plans and procedures.<br><br>No acceptance testing action required. |
| TRMM8060#A | ECS shall archive and distribute TRMM test plans and procedures for the interface between ECS and the TRMM ground system including TSDIS.<br><br>No acceptance testing action required. |
| TRMM8071#A | ECS shall support all dataflows and archival and distribution functionality for integration and test with the TRMM ground system.<br><br>No acceptance testing action required. |
| TRMM8080#A | ECS shall support TRMM Mission Simulation #1<br><br>No acceptance testing action required. |
| TRMM8081#A | ECS shall support TRMM Mission Simulation #2<br><br>No acceptance testing action required.. |

| TRMM8090#A | ECS shall archive and distribute TRMM algorithms and documentation in support of test and integration of interfaces with TSDIS<br>No acceptance testing action required.<br><br>No acceptance testing action required. |
|---|---|
| TRMM8110#A | The TSDIS elements shall be capable of processing simulated TRMM Instrument data in support of pre launch checkout of the interfaces with ECS.<br><br>No acceptance testing action required. |
| TRMM8120#A | ESDIS shall coordinate provision of LIS and CERES simulated instrument data and instrument data parameters to SDPF in support of integration and test.<br><br>No acceptance testing action required. |

**Test Inputs:   None**

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| None. | | | | |
| | | | | |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| | None | |
| **Data Reduction and Analysis Steps:** | | |
| **Witness Signature:** | | **Date:** |
| **Tester Signature:** | | **Date:** |

## 12.5.4.3 ECS Overall Capabilities

| TEST Procedure No.:<br>A120640.030$L | Date Executed: | Test Conductor: |
|---|---|---|
| **Title:** | ECS Overall Capabilities | |
| **Objective:** | The ECS Overall Capabilities procedure consolidates requirements that specify broad ECS capabilities. These requirements are too broad to be verified through the execution of a single test or demonstration. In this procedure, the results of previously executed procedures are reviewed and analyzed to verify that the ECS is capable of performing all Release A functionality. | |

| Requirements | Acceptance Criteria |
|---|---|
| DADS0210#A | This requirement is verified through analysis.(Change from test)<br><br>Each DADS shall be capable of receiving, at a minimum, the following types of EOS instrument data in support of pre-launch checkout of the ground system:<br>a. Real EOS instrument data<br>b. Simulated EOS instrument data<br><br>Rel A has AM-1 and Landsat-7 ingest capability for early interface testing using simulated data. |
| DADS1970#A | This requirement is verified through analysis.<br><br>Each DADS shall access from the SMC, via the system database, the product thread information for each standard and quick-look product generated by EOSDIS.<br><br>**Awaiting clarification from ESDIS.** |

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|---|---|
| EOSD0500#A | This requirement is verified through analysis.<br><br>ECS shall perform the following major functions:<br>a. EOS Mission Planning and Scheduling<br>b. EOS Mission Operations<br>c. Command and Control<br>d. Communications and Networking<br>e. Data Input<br>f. Data Processing<br>g. Data Storage<br>h. Data Distribution<br>i. Information Management<br> j. End-to-End Fault Management<br>k. System Management<br><br>Procedures from all four scenario groups are analyzed to determine the capabilities of the ECS installation at this site to meet the general requirements listed above.<br><br>For A, only DAAC planning and scheduling is verified in this procedure.  B and C are not verified in this procedure.  These items are verified in the EOC Test Procedures. |
| EOSD1750#A | This requirement is verified through analysis.<br><br> The GSFC DAAC shall receive data including the following types of supporting information from the ECS science community (TLs, TMs, PIs, and Co-Is):<br>a. Algorithms<br>b. Software Fixes<br>c. Instrument Calibration Data<br>d. Integration Support Requests<br>e. Metadata for Special Products Archiving<br>f. Data Transfer Requests (inventories, directories, and browse<br>g. Data Quality/Instrument Assessment<br>h. Instrument Operations Information<br>i. Ancillary Data<br><br>The SCF procedures in the Pull Scenario Group are analyzed to verify the DAAC's capability to support the science community. |
| IMS-0010#A | This requirement is verified through analysis.<br><br>The IMS shall be capable of providing 24 hour per day, 7 day per week access to the ECS services.<br><br>The End to End procedures are analyzed to evaluate the site's capability to maintain 24-hour a day operations. |

| SDPS0085#A | This requirement is verified through analysis.(Change from test) |
|---|---|
| | The SDPS shall support data products transitioned from V0 at a level of service equal to or greater than the level of service provided for those same data products by V0. The level of service are defined in Appendix C of the ESDIS Project Level 2 Requirements, Volume 5 EOSDIS Version 0. |
| SDPS0120#A | This requirement is verified through analysis. |
| | The SDPS shall be capable of operating in a 24-hour a day, 7-day a week mode. |
| | The End to End procedures are analyzed to evaluate the site's capability to maintain 24-hour a day operations. |
| SDPS0130#A | This requirement is verified through analysis. |
| | The SDPS shall provide the capability for DAACs to exchange data products, browse data, metadata, data quality information, research results, and documentation. |
| | The following procedures must demonstrate the capability to exchange data between the DAACS: |
| | a. A120610.010$L |
| | b. A120610.020$L |
| | c. A120610.030$L |

**Test Inputs:**   Results of Acceptance Testing (AT Logs)

| Data Set Name | Data Set ID | File Name | Description | Version |
|---|---|---|---|---|
| None. | | | | |
| | | | | |

| Step-By-Step Procedures | | |
|---|---|---|
| **Step No.** | **Input Action / Expected Results** | **Pass / Fail / Comments** |
| | None | |
| **Data Reduction and Analysis Steps:**<br>  Review the acceptance test result as stated in the acceptance criteria. | | |
| **Witness Signature:**<br>**Tester Signature:** | | **Date:**<br>**Date:** |

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411-CD-004-001